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A. GENERAL PROBLEMS.

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J.Parnas

MONOGRAPHY "ANTROPOZOONOZY".

90.

P.Z.W.L., 1960, Warsaw.

This monography contains the following chapters:

General remarks

detailed, containing:

1. Rabies
2. Aujeszky disease, pseudorabies
3. Virus myelencephalities
4. Louping ill
5. Spring-summer encephalitis in men, due to ticks
6. American horse-encephalitis, in men
7. East-American horse encephalitis
8. Louping ill, in people
9. Japan infective encephalitis, and russian autumn encephalitis
10. Infective encephalitis, St.Louis
11. Australian encephalitis, disease X
12. Profilactic and fight against antropozoonical encephalitis
13. Armostrong disease (choreomeningitis limphocitica)
14. Aphthae epizoticae
15. Variola et vaccinia
16. Milker nods
17. Ornithosis-psitacosis
18. Cat cratch disease
19. Rickettiosis in men and animals
20. General remarks about rickettiosis in men and animals
21. Ratt-typhus
22. Rocky mountain spotted fever
23. Sao Paolo and Tobia fever
24. Kenya fever
25. South African tick fiver
26. Bullis fever
27. Ricket pox

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28. Russian ticket typhus
29. Tsetsugamuski grippe
30. Sorguksa A.
31. Streptococcal infections in men and animals
32. Pasteurellosis in men and animals
33. Pasteurelles and Pasteurellosis
34. Pasteurellosis in animals
35. Pasteurellosis in people
36. Rodentiosa parasitosa of rodents
37. Rodentiosa in animals
38. Rodentiosa in men
39. Pestis
40. Tularemia
41. Brucellosis
42. Animalish alimentary infectious intoxication
43. Salmonellosis (para typhus and paratyphosic meat intoxications)
44. Botulism
45. Alimentary Staphylococcus intoxications
46. Alimentary intoxications, evoked by Streptococcus
47. Trichinellosis
48. Erisipeloid Rosenbach
49. Listeriosis
50. Malleus
51. Melicidosis
52. Antropozoontical tuberculosis
53. Disease symptoms in animals
54. Different forms of antropozoontical tuberculosis, in men
55. Surgical tuberculosis
56. Tuberculosis epidermae
57. Tuberculosis meningitis
58. Tuberculosis serummucosae
59. Antropozoontical occupational tuberculosis
60. Anthrax
61. Malleus
62. Sodoku, rat-bite fever

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**IV. ANTHROPOZOOSES AND PARASITOLOGY  
IN RURAL ENVIRONMENTS.**

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63. Leptospirosis
64. Leptospirosis non icterus
65. Swamp-fever
66. Pig-breeders disease (disease Boucher)
67. Dog disease
68. Profilactic and fight against leptospirosis.

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J. Parnas

ANTROPOZOONOTICAL ANIMAL INFECTIONS BY  
NEUROTROPIC VIRES. 91.

Neurologia, neurochirurgia i psychiatria Polska,  
1956, Nr.3, p.361.

Domestic animals

The U.S.A. have enlightened the question of horses being reservoirs and sources for human infections like encephalitis. We found in Europe some descriptions about horses encephalitis, Parnas, Hamerski and Walkiewicz wrote about this subject.

However, as to now, we didn't note such cases in people, being joint with mass morbidity of horses, in spite of the very closely contact of country people with these animals, when they are ill. We seldom find in cows encephalitis, evoked by a virus which at to day is little known. Investigations, performed by Morzycki, and Mrs. Lachmajer allow to admit, that cows may sometimes be pathogenical reservoirs for men. Czechoslovakian scientists affirmed, that the encephalitis virus may be found in milk. Sheep, dogs, cats, tamed foxes, rabbits and fowl may be reservoirs of encephalitis virus, too. As for now, we couldn't find any cases of morbidity among people, caused by animals.

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Wild animals

The encephalitis virus has been frequently found in wild animals. These infections are mainly not symptomatical ones, and show a characteristical prolonged viremia. Thus, the great importance of these animals, especially of field and wood rodents, forest ruminants, carnivorous and omnivorous animals, living in woods, and also wild birds, which are the focus of natural encephalitis.

Arthropodae have a great part in encephalitis epidemics, especially mosquitos and gnats (U.S.A., Japan) and ticks. The vulgar Ixodes ricinus living in Poland, is something like the vector of encephalitis virus, and picking flies are its transporters. This animal encephalitis has a particular meaning for the country and its population. The diagnosis in this disease must be performed by clinicians, microbiologists, epizoologists, epidemiologists, zoologists, ecologists, entomologists and virusologists. A collaboration of physicians and veterinary doctors is indispensable for such cases.

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J. Parnas

UTILIZATION OF THE ELECTROTONIC MICROSCOPE FOR 92.  
MICROBIOLOGICAL INVESTIGATIONS CONCERNING  
PATHOGENICAL BACTERIA.

Bull. Office Intern. Epizoties, 1956, 4, 5, 5-6, p. 364.

The author joins pictures of pathogenical microorganisms which have been performed in collaboration with the State Institute for Hygiene in Warsaw and the Electrotonic Microscope Laboratory of the Medical Department at Masaryk University in Brno. The work contains further a

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picture of the pig grippa virus G, (isolated by Lorkiewicz and Parnas), pictures of Escherichia coli and Corynebacterium equi with their bacteria flags, pictures showing the morphological differences between Pasteurella multocida and Pasteurella rodentium, pictures of Pasteurella tularensis, before and after ultrasonic activity, and a picture of Brucella brucei.

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J. Parnas

THE STANDARIZATION OF SOME ALLERGENS EMPLOYED 93.  
IN THE DIAGNOSIS AND THERAPY OF ANTHROPOZONOSES.

Proceedings of the Fifth International Meeting for Biological Standardization held in Jerusalem, Israel, September 13-20, 1959.

Allergic skin reactions were observed after the administration of the specific antigens in the course of the following anthrozoonoses: tuberculosis, erysipela, glanders, brucellosis, tularemia, ornithosis, Q-fever, leptospirosis, toxoplasmosis, cysticerosis, echinococcosis and trichophytosis. The specificity of the reactions - which followed the administration of the above mentioned antigens justifies their employment for diagnostic purposes. Some of these specific antigens were also employed for therapeutic purposes, in disease such as brucellosis and tularemia.

The standardization of the production method, the control and the mode of administration of these allergens is, therefore, highly important.

Since 1937 work in our laboratory, as well as clinical research was devoted to this problem. The work was temporarily suspended during World War II. Owing to limita-

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tions of space, only the methods employed for standardization of PD-brucellin, U-tularin, LU-toxoplasmin, PS-mallein, PLM ruscopathin, PL ornithin and PK leptospirin are dealt with in the present report.

Standarization of allergens

B r u c e l l i n. Brucellin is produced in 3 variants: PD Diagnosticum humanum brucellinum, PD Diagnosticum veterinarium brucellinum, PD Therapeuticum humanum. Pd-therapeutic brucellin is used in therapy of human brucellosis in addition to antibiotics. PD-diagnostic veterinarian brucellin is used in cattle, sheep, goats, swine, horses, dogs and poultry, as an important diagnostic reagent, complementary to serological tests.

The t u l a r i n test is a valuable means of diagnosing tularemia in men and animals. While, in the course of brucellosis the specific skin reaction becomes positive after a prolonged period, the tularin reaction becomes positive early, about 7 - 10 days after the onset of the disease. U-tularin was therefore employed in our country for diagnostic and epidemiological purposes, as well as under epizootical conditions, for the determination of the actual and retrospective rate of spread of the disease. U-tularin was employed in a similar manner to that described for PD brucellin, in periodical examinations of workers, occupied in forestry and people hunting hares and handling their products. U-tularin was also applied in the differential diagnosis of tularemia and brucellosis. While positive agglutination and cutfixation with heterologous antigens were described in brucellosis and tularemia, by other authors, U-tularin and PD-brucellin were, according to our own experience, strictly specific and without any cross-reactions. The classic mallein of Hellman is widely employed in veterinary medicine and sometimes also in human medicine and epidemiology. Malleine undoubtedly contained impu-

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rities which diminished its specific value and produced non-specific allergic reactions in horses. Panell who has worked on its purification since 1935, succeeded in obtaining a purified product well known for its highly specific antigenity. In 1947, we started to work on the improvement of mallein and finally obtained PS-mallein, which is known to be highly specific and effective. We obtained PK-leptospirin which simultaneously contains the allergens of the following strains: *L.icterohaemorrhagiae*, *L.canicola*, *L.grippotyphosa* and *L.pomona*.

PK-leptospirin was used by us in diseased dogs, which showed positive seroreaction as a result of subclinical infections, as well as in healthy dogs. In each test a protein medium was simultaneously used as control. These tests were performed on 40-sero-positive dogs and 20 control dogs. As in the control animals, the reaction was always negative, these proved the specificity of the allergen. In sero-positive dogs the skin reaction was always positive or strongly positive. All considered, the leptospirin tests prove to be a valuable aid in the serodiagnosis of leptospirosis.

PL-ornithin is a valuable diagnostic agent in ornithosis of men and animals. It is identical with an antigen of ornithosis employed in complement fixation and may also be used as an allergen in the diagnosis of ornithosis.

PLM-rusipathin was obtained from suspension of *Erisipelothrix ehisopathiae*. A pure S-culture was employed  $2 \times 10^9$  per ml. microorganisms were disintegrated by the aid of ultrasonic waves. The allergens provoked positive skin reactions in infected individuals.

PD-brucellin, U-tularin, U-mallein, PK-leptospirin, LU-toxoplasmin, PL-ornithin and PLM-rusipathin produced positive skin reaction in sensitized individuals and thus

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proved to be suitable for the diagnosis of the respective disease in the both men and animals, and served as important tools in combating anthroponoses. The standarization of the production of above mentioned allergens let to improvements in their affectivity and their antigenical specificity. Their dosages, methods of administration and the evaluation of resulting reactions were likewise standarized.

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J. Parnas, W. Zwolski, K. Łazuga, A. Koślak,  
J. Umiński, K. Burdzy

ON ZOOLOGICAL, MICROBIOLOGICAL AND PARASITOLOGICAL INVESTIGATIONS DURING THE EXPEDITIONS ORGANIZED FOR EXPLORATION OF NATURAL FOCI OF ANTHROPOZOOSES.

Wiadomości Parazytologiczne, 1960, VI, 2/3, p.125.

1. The map presented shows complex field investigations undertaken by various institutes and aiming at research on diseases with natural foci. In 1953 and further, in the years 1955-1959 systematic zoological-ecological investigations were carried out in the foci of Szczecin and Lublin areas, the results of which are shown in tables. In the region of Szczecin province 3,358 mammals were examined, and in the Lublin area 4,501 small mammals (partially other animals too).
2. Ectoparasites were recovered from 2,200 mammals caught in the Lublin district. In the material collected in the period from 1.VII.1957 to 1.VII. 1959 were found: 4,052 lice, 1,946 fleas, 507 ticks

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of the Ixodidae family and some thousands of small Parasitoformes.

3. From *Microtus arvalis* caught in natural foci of leptospirosis the following ectoparasites were examined on *Brucella* and *Leptospira*: Laelaptidae - 677 individuals, *Hoplopleura acanthopus* - 299, fleas - 9. The results of microbiological investigations were negative.
4. A negative result was also obtained with larvae and nymphs of *Ixodes ricinus* fed on 4 guinea pigs, 8 white mice and 4 *Microtus arvalis*, infected with a *Leptospira grippotyphosa* strain.
5. 278 lice *Hoplopleura acanthopus* were fed on *Microtus arvalis* infected with a virulent *Brucella brucei* strain, and pure culture of this microorganism was isolated from them. This may be evidence of a possible role of lice in the epizootiology of brucellosis in natural foci.

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B. BRUCELLOSIS.

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J. Parnas and A.R. Tuszkiewicz

MONOGRAPHY "BRUCELLOSIS".

95.

P.Z.W.L., Warszawa, 1956.

This monography contains 350 pages showing all about the brucellosis problem - with individual remarks on this disease in Poland.

The work leads upon personal observations executed in the Institute for Country Work and Hygiene in Lublin. The Institute is the centre of brucellosis researches in Poland.

We discussed individual chapters as follows:

- History of researches on Brucellosis
- Microbiology and imunobiology of the brucellosis bacillus
- Brucellosis in experimental animals
- Epizootiology of brucellosis
- Epidematology of brucellosis
- Prophilaxis against brucellosis for people
- A method for diagnostical-laboratory researches
- Therapeutic vaccines against brucellosis
- The pathogenesis of brucellosis and its forms
- Pathological anatomy of brucellosis
- Symptomatology of brucellosis
- Diagnostic and prognostic for brucellosis
- The clinical picture of brucellosis
- Therapy for brucellosis in people treatment.

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J. Parnas, K. Glinkowa, K. Łazuga, B. Prejbisz

INVESTIGATIONS ON BRUCELLOSIS OF MAN AND  
ANIMALS IN STATE - OWNED FARMS.

96.

Annales, UMCS, 1953, Vol. VIII, Sect. D, p. 71.

The present report shows the results of investigations concerning infection with Brucella among animals and workers of 4 state-owned farms. Complex diagnostic investigations on human and animal brucellosis were carried out (Wright's, Bordet-Gengou's, and Burnet's tests, ring reaction with milk). It has been found that in farms where cows are infected with Brucella, infection can also be detected in farm workers. Out of 297 examined persons, 16 showed positive reactions: among these one case of sharp, clinical symptoms of brucellosis, and two cases of chronic infection were observed.

Generally speaking, brucellosis or infection with Brucella among agricultural workers may manifest themselves by:

- a) clinical symptoms,
- b) serological reactions positive or doubtful,
- c) positive Burnet's reaction.

Cases belonging to groups b) and c) are subclinical or symptomless type.

In the authors' opinion, Burnet's reaction has proved in their investigations a specific test, being positive only in sporadic cases, probably in subjects specifically sensitized. Burnet's reaction is a better means of detecting infection with Brucella than serological reactions in cases where no clinical symptoms are present. The complement fixation reaction is a valuable supplement to the haemagglutination test; the ring reaction with milk is well suited for detecting sources of Brucella infection in milk.

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The results of the authors' investigations prove that cases of Brucella infection are present not only among members of zootechnical and veterinary services, but also among agricultural workers. The authors advocate periodical examination of workers of state-owned and collective farms, which can help to detect and, if necessary, to treat medically cases of infection with Brucella.

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J.Parnas, K.Łazuga, T.Mierzejewski

PROBATORY USE OF THE HAEMAGGLUTINATION REACTION 97.  
FOR DIAGNOSTIC PURPOSES IN BRUCELLOSIS.

Annales UMCS, 1953, Vol.VIII, Sect.D, p.53.

The authors' own research as well as the scanty data in the literature of the subject lead to the conclusion that sensitivity and specificity of the haemagglutination reaction depend chiefly on the antygene used to sensitize the blood corpuscles. Best results were obtained by using the so called albumino-polysaccharoid fraction prepared according to the method of Dubrowska in the authors' modification. Last specific proved the antygene used by the authors for complement fixation test (water extract of *Brucella abortus bovis*). The albumino-saccharoid, albuminous, and saccharoid fractions prepared by the authors proved little sensitive and little specific. It is possible that a far-reaching purification of the antygene causes the loss of its specificity; this is illustrated by the fact that the fraction obtained by the authors, if not precipitated with acetone, and only subjected to a short dialysis, is sensitive and specific, while a polysaccharoid (fraction III) precipitated from

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that fraction with acetone, is comparatively little sensitive and little specific.

The haemagglutination reaction can be used for diagnostic purposes in brucellosis as supplementary to Wright's reaction and complement fixation test. To that purpose there should be used the antigenic fraction obtained by the authors, and called the albumino-polysaccharoid fraction. This reaction needs further research, based on a bigger human and animal material.

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J. Parnas, S. Stępkowski, T. Rukasz

INVESTIGATIONS ON THE INFLUENCE OF AUREOMYCIN, 99  
CHLOROMYCETIN, AND BRUCELIN PS ON THE COURSE  
OF INFECTION WITH BRUCELLA.

Annales UMCS, 1953, Vol. VIII, Sec. D, p. 37.

The authors investigated the bacteriostatic influence of aureomycin and chloromycetin on *Brucella abortus bovis*, and the therapeutic action of those antibiotics administered partly with brucelin PS to experimentally infected Guinea-pigs and rabbits.

In vitro aureomycin showed a stronger activity than chloromycetin. Bactericidal doses of aureomycin for cultures older than 18 hours amounted to 125 - 250 microgrammes for 1 ccm of the medium and for quite young cultures 2- 8 microgrammes per 1 ccm. Analogical doses of chloromycetin were 1000 - 2000 microgrammes per 1 ccm and 8 - 62,5 microgrammes per 1 ccm. The bacteriostatic action of aureomycin became noticeable with doses of 0,06 - 0,25 microgrammes per 1 ccm, that of chloromycetin with doses from 2 microgrammes per 1 ccm upwards.

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After being infected with *Brucella abortus bovis*, the animals were divided into several groups, and then various methods of treatment were used for separate groups (aureomycin, aureomycin and brucelin PS, chlormycetin, chloromycetin and brucelin PS, brucelin PS only).

The estimation of the results was based on:

1. checking the temperature of the body of the animals during the first month after the end of the treatment,
2. periodical testing (every second week) the serological reactions (the complement fixation reaction, the agglutination reaction),
3. post mortem and histopathological examinations,
4. grafts taken from internal organs of animals which died or were killed.

All above mentioned methods of treatment allowed to keep alive during the three months observation period the infected animals, whereas a great part of the control Guinea-pigs and rabbits died.

Best therapeutic results were observed in animals treated with aureomycin (with or without brucelin PS); the degree of histopathological changes in those animals was small in comparison with control animals or those treated in a different way. In one Guinea-pig which had been treated with aureomycin, the disappearance of serological reactions was observed, which points to the extinction of the infection.

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J. Parnas, H. Theile, T. Mierzejewski

STUDIES ON ANTIGENIC AND NON-ANTIGENIC BRUCELIN. 100.

Annales UMCS, 1953, Vol. VIII, Sec. D, p. 117.

The authors carried out comparative studies on the influence on the organism of several brucelin allergenes, such as brucelin PS and PD, brucelin POBA according to Ottosen and Plum, and 4 fractions of *Brucella abortus bovis*: albumino-saccharoid, albuminous, saccharoid, and fraction used for complement fixation test.

On the basis of their investigations the authors arrived at the following conclusions:

1. Brucelin POBA is a hapton allergene, and does not give rise, even if used in large doses, to antibodies specific to *Brucella*. In this respect brucelin POBA surpasses, like the Soviet preparation called brucellobydrolysate, brucelin PS or PD.
2. Fractions of *Brucella* obtained by the authors, namely the albuminous, polysaccharoid and albumino-polysaccharoid fraction, are not suited for allergic reactions, because as allergenes they are too little sensitive. In addition to that, they cause the formation of antibodies.
3. Brucelin PS and PD in comparison with brucelin POBA are much more sensitive full-antigenic allergens. They cause the formation of antibodies, which remain in the organism up to 8 weeks. Brucelin PS and PD although they can be used in dilutions excluding strong toxic action, surpass almost by 100 per cent brucelin POBA as far as sensitivity is concerned.
4. Investigations described by the authors in this report point to brucelin PD or PS as best suited for diagnosis of brucellosis in man and animals.

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J.Parnas, H.Theile, A.Koślak, I.Mierzejewska

CONCERNING THE AGGLUTINATION AND COMPLEMENT  
FIXATION REACTION IN COMPLEX DIAGNOSIS OF  
BRUCELLOSIS.

101.

Annales UMCS, 1953, vol. VIII, Sec.D, p.89.

The authors carried out 1057 tests of cattle and 987 blood tests in man for the Brucella infection, the agglutination and complement fixation tests were used. Among cattle the agglutination tests in 637 cases amounted to 1/25, the complement fixation reaction giving a doubtful result, which was also interpreted as a negative result (0,91 per cent). In 31 cases the agglutination reaction was negative and the complement fixation reaction doubtful, which again determines a negative result (0,29 per cent). In 691 cases both reactions were positive (6,53 per cent). The number of doubtful cases was decreased to 216 (2,04 per cent) owing to the application of both serological reactions.

In men both reactions were negative in 801 cases, in 136 cases both reactions were positive. Doubtful cases were cleared up by the complement fixation reaction in a smaller scope than that observed during the examination of cows. These investigations show an indisputable value and necessity of simultaneous application of both serological reactions in every examination of human individuals and if possible, also in the examination of cattle.

A collection of Brucella strains (94) was examined for their glueing properties in the agglutination reaction; each time the same concentrations of antigen were used. Great differences in glueing properties of different strains were observed, which emphasizes the necessity of using in all laboratories the same standard controlled strains.

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Portions of controlled positive serum were sent to district sanitary and epidemiological stations for carrying out the agglutination reaction. The obtained results differed in different laboratories, which might have been caused by using different strains of bacteria, different concentrations of antigen, and by methodological differences in carrying out and interpreting the agglutination reaction. Documentation concerning standard laboratory method for diagnostic purposes has been prepared.

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J.Parnas, K.Glinkowa, K.Łazuga, B.Prejbisz

EXPERIMENTAL INVESTIGATIONS ON THE EFFICIENCY OF 102.  
PROTECTIC CREAMS AGAINST BRUCELLOSIS FOR AGRICULTURAL WORKERS.

Annales UMCS, 1953, vol.VIII, Sect.D, p. 63.

The authors carried out investigations concerning the protective value of the following creams containing:  
a) therapogene, b) streptomycin with sulphadiazin,  
c) sulphadiazin, d) sulphadiazin with salicylic and boric acid. These creams show certain protective properties, though in a limited degree. The cream called ABTH<sub>1</sub> protected against infection with Brucella 25 per cent of observed animals. Streptosuld (b) - 50 %, Sulfad (c) - 25 %, and Sulfacomb (d) protected no rabbit against infection.

These results do not allow to recommend one of those creams as a sure protective of hands against brucellosis. The only efficient protection of hands against infection with Brucella can be given by rubber gloves, which may be safely recommended to the workers of veterinary and zootechnical service.

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As an emergency measure, however, a thick layer of protective cream may be helpful, although the protection will never be perfect. Hands should be profusely covered with cream; during work the layer of cream should be repeatedly renewed on those parts of the arm and forearm where it is particularly exposed to being rubbed off. After work it is indispensable to wash the hands in warm water, using mild soap, and to disinfect the skin with a non-irritant disinfectant, after which pure, neutral vaseline should be applied.

The above mentioned investigations point to the cream containing streptomycin and sulphadiazin as comparatively best protective.

The danger of infection can be lessened by paying more attention to the state of nails and adjacent skin, since slightest wounds or bursts of the latter (often caused by manicure) can be the gate of infection. The use of special rubber protectors for the tips of fingers could be also recommended.

Investigations on the usefulness of protective creams against brucellosis (and other skin infections) should be continued.

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J. Parnas

RESULTS OF STUDIES ON PHENOMENA OF ALLERGY IN  
BRUCELLOSIS.

103

Annales UMCS, 1955, Vol.X, Sec.DD, p.119.

The present paper is a synthesis of the authors studies conducted during the period of 10 years (1945 - 1955) includes data from the literature and presents an outline of our knowledge on the allergic state in the course of brucellosis in man and animals. Particular

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attention was drawn to the allergic state for the diagnosis of brucellosis in man and animals. A critical analysis of the Burnet reaction was made in the light of reservations here and there stressed. A description is given of the method of production of the authors own allergens PS (Parnas, Stępkowski) and PD (Parnas, Daszkiewicz), their control, use in the Burnet reaction and the interpretation of the base of serologic reactions. Numerous experimental tests proved that brucellin PD is a superior, more sensitive, more specific and milder in its action antigen than brucellin PS. Danish brucellin PEBA (analogic to the American Huddleson brucellergen) and the authors allergens obtained biochemically. Brucellin PD has been approved by the Sanitary Epidemiologic Department of the Ministry of Health on the basis of evidence of state control made by the State Department of Hygiene and the Clinical Section of Professional Diseases of the Rural Population of the State Institute of Rural Occupational Medicine and Rural Hygiene (A. Tuszkiewicz). A dose of 0,1 ml. of brucellin PD proved to be optimal in the diagnostic use in man (in animals 0,3 ml.). Further studies on the allergic state in brucellosis of man and animals are required. The author regards as right Wyszelewski's opinion on the benefits of diagnostic use of brucellin in cattle and other animals.

A. Chodkowski, J. Parnas, H. Hryniiewicz

INVESTIGATION ON BRUCELLA STRAINS WITH PARTICULAR 104.  
REFERENCE TO BRUCELLA VARIETIES IN POLAND.  
Annales UMCS, 1955, vol. X, Sect. DD, p. 1.

Experiments have been carried on morphological and biochemical properties of Brucella organism, their mutability

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and on differentiation of Brucella strains isolated and collected from various parts of Poland. With the help of chromatographic analysis we have found the following biochemical properties in the Brucella strains of our collection: the presence of glucosamine in all three varieties of Brucella melitensis, suis and bovis except two strains S<sub>19</sub> and PD county strains subcultivated many times on media with the addition of bovine bile. We found the traces of xylose in all three varieties of Brucella, no ribose, contrary to tularemia and pateurella organism which contain this ingredients. There was no difference in the distribution of aminoacids in various varieties of Brucella strains. With the use of various modified Henry's, Brown thermoagglutination reaction, we have differentiated twelve various morphological varieties of Brucella colonies. It has been proved that by subcultivation of Brucella bovis, suis and melitensis, varieties on various metabolites of another varieties of Brucella strains, there exists a changeability in atypical and intermedial varieties.

There is following result of research of 123 home Brucella strains isolated mostly from bovine foetus, from various districts of Poland and differentiated with the help of above described joint methods: 108 (89,25 %) typical bovis varieties, 5(4%) typical suis varieties, 1(082 %) melitensis variety isolated from the bovine foetus and 9(7,43 %) atypical or intermedial varieties. With the use of biochemical methods for the differentiation of Brucella strains, we have found 104 bovis varieties, 15 suis, 1 melitensis and no one of intermedial variety. Out of 108 typical pressure of CO<sub>2</sub> for their growth in spite of the presence of strains which were subcultured many times for many months. Two Brucella bovis strains did not produce H<sub>2</sub>S in the slant liver extract agar and four strains of this variety have produced H<sub>2</sub>S for a shorter period than two days. Eleven strains hydrolysed

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urea in a shorter period than 20 minutes and in this time behaved as a suis variety. Two *Brucella suis* varieties have produced  $H_2S$  for a shorter period than four days. One typical and one atypical *Brucella melitensis* variety produced  $H_2S$  for five days. Bacteriostatically all 108 typical bovis varieties behaved normally on media with the addition of basic fuchsine and tioniine. Particular attention is to be paid to No 103 strain, which behaved bacteriostatically as typical bovis and serologically as typical melitensis variety. Five *Brucella suis* varieties behaved bacteriostatically normally. One atypical *Brucella suis* variety No 33, probably of Danish origine, has not grown on media with basic fuchsine in 1:50.000 F.C.

Out of 22 *Brucella* strains, obtained from abroad, ten strains were classified as bovine varieties, seven as suis, three as melitensis and two as atypical intermedial varieties. One suis, probably of Danish origine and one bovine varieties did not produce  $H_2S$ . One *Brucella melitensis* variety have produced  $H_2S$  for five days. Two *Brucella* strains of bovis and one of melitensis variety have hydrolysed urea in a shorter time than 20 minutes and in this way behaved as suis variety. Bacteriostatically all three varieties, i.e. bovis, suis and melitensis behaved normally. Out of two atypical intermedial varieties, which have grown on basic fuchsine and tioniine media, behaving in this way as melitensis varieties one has been classified serologically as a bovine and one as a suis variety. Out of 145 *Brucella* home and from abroad obtained strains 118 strains have been classified as typical bovis, 12 as typical suis, 4 as typical melitensis and 11 as atypical varieties. The isolation and identification from the bovine foetuses in the country of all three varieties of *Brucella* strains bovis, suis and melitensis and suis strains from pigs is very important from epizootiological and epidemiological point of view.

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J. Parnas, K. Łazuga, I. Mierzejewska

BRUCELLOSIS AS AN OCCUPATIONAL DISEASE WITH  
REFERENCE TO INVESTIGATIONS CARRIED OUT IN  
POLAND.

105.

Przegląd Epidemiologiczny, 1956, X, 3. p.185.

Team investigations carried out in Poland in recent years have shown a considerable percentage of positive serological and allergical reactions amongst persons employed in cattle-rearing, veterinary staff, etc. coming into contact with animals infected with brucellosis.

The results of these investigations are given in relation to materials referring to brucellosis as an occupational disease both in Polish and the world literature.

J. Parnas, K. Łazuga, S. Czuczwar

ON THE PROPHYLAXIS OF BRUCELLOSIS - OCCUPATIONAL 106.  
DISEASE OF WORKERS IN ANIMAL BREEDING AND  
PRESERVE PLANTS.

Medycyna Pracy, 1956, VII, 2, p.81.

On the basis of about 100 cases of brucellosis examined and treated in the Clinic and about 350 cases examined outside of the Clinic the authors have presented the trades which are exposed to brucellosis infection, the sources and porta of infection, the prophylactic measures in the form of protective creams, prophylactic inoculation etc.

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In final conclusions the authors have discussed the rule of the District Stations of Sanitation and Epidemiology, of Inspectors of Safety and Hygiene of Work in the rural areas, of veterinary and zootechnic authorities, of the Institute of Farm Work Medicine and the Institute of Protection of Work.

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J. Parnas, T. Krwawicz, B. Szwarc, K. Gerkowicz

**IMMUNOLOGICAL TESTS IN EXPERIMENTAL INFECTION OF 107.  
CORNEA WITH BRUCELLA.**

(Preliminary Communication)

Klinika Oczna, 1957, 27, 3 a.

Intracorneal injections of non virulent strains of brucella resulted in manifest inflammatory changes in rabbits, but neither serological tests nor the Burnet test were positive. Tests were, however, invariably positive in another group of test animals in whose corneas a suspension of a culture of virulent strains of brucella was introduced. It seems that the local infection of the cornea with non virulent strains of brucella does not always result in the immunization of the whole organism. Similar may be the pathology of the human cornea in nummular keratitis which is associated with brucellosis. In patients suffering from nummular keratitis who were under observation, no clinical symptoms of brucellosis were found, and serological test as well as the allergic test were negative.

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J.Parnas

EXAMINATIONS CONCERNING THE TECHNICS AND  
 INTERPRETATION OF THE BURNET TEST IN THE  
 COURSE OF HUMAN AND ANIMAL BRUCELLOSIS.

108.

La revue d'Immunologie, 1957, vol.XXI, Nr.4.

The author presents to the medicine and veterinary doctors, working in outposts of the Health-Service, the last conquest of science, concerning the apply and the evaluation of Burnet's interdermatic-allergical reaction, by using brucelline PD for men and animals.

The Burnet test for men and animals is a difficult problem. Brucelline PS evoked polemics among medicine and veterinary Centres. It is far more toxic than brucelline PD, which is known to be a mild and sensible allergene. Thanks to brucelline PD one can avoid violent positive feactions, using doses from 0,05 - 0,1 ml. The Department for Sanity and Epidemiology of the Board of Health, agreed to the use of PD and the improved instruction of the Institute of Rural Occupational Medicine and Rural Hygiene.

Among people, working in infected centres, and having always been in contact with them, one could often observe allergic symptoms; never more than 0,05 ml. brucelline PD has been used. In cases of doubtful reaction, the measures have been repeated, using 0,1 ml. Thus, the brucellosis problem for men and animals found a scientific dissolution, which is of great importance for the problem.

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J. Parnas, S. Bednarski, R. Kozak, J. Galiński

EXAMINATION RESULTS, CONCERNING THE SENSIBILITY 109.  
 OF BRUCELLA OF OUR OWN COLLECTION, AND THE ANTI-  
 BIOTIC ACTION.

La Revue d'Immunologie, 1957, Vol. XXI, No. 5, 6, p. 356.

The authors tested 190 strains of *Brucella brucei*. The investigations have been performed on strains "S" - which have been cleaned by means of Henry's, Braun's and Burnet's methods.

The following antibiotics were used:

aureomycin S  
 chloromycetin  
 streptomycin  
 cristallic terramycin.

The tabela results showed, that the strains were subdued to a growth restrain under the influence of the following concentrations:

- a) aureomycin - 1,56 mg/ml medium in a period of 24 h.  
 3,12 mg/ml " " " 48 h.
- b) chloromycetin - in a concentration 3,12 mg/ml p. 24 h.  
 " " " 6,25 mg/ml 48 h.
- c) terramycin - " " " 1,56 mg/ml 24 h.  
 " " " 3,12 mg/ml 24 h.
- d) streptomycin - 12,5 mg/ml 24 h.  
 25. mg/ml 48 h.

2º Among the strains, having been subjected to antibiotics of 12,5 mg/ml concentration, fluid culture - for a period of 72 hours, the following quantities have been destroyed by:

aureomycin	8,7 %
chloromycetin	17,4 %
terramycin	26,1 %
streptomycin	87 %

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3° The results showed, that the sensibility of Brucella differed in dependence of the tested strains.

4° Among the used antibiotics, which had been added to the constant mediums, terramycin had the greatest influence.

5° Aureomycin employed with streptomycin showed a more efficacious activity, than all the other antibiotics, which have been used separately.

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J.Parnas, K.Łazuga

NEW ALERGENS BRUCELLIN PD AND TULARIN M

110

(abstracted by the authors)

Żurn.Mikrob.Epid.i Immunobiol., 1957, Nr.2, p.92

The authors worked out a new manner for obtaining brucellosis and tularemia alergens. Brucellin PD has been obtained from immunogene and virulent brucella strains var. bovis, Nr. 24,544 and 36 ones which appear in phase 5; they had been smashed by ultrason (2800 Kc/sch - 90 min., 30°).

Tularin B has been obtained in the same manner with phase 5 of Pasteurella tularensis strain. Brucellin PD and Tularin M are not very toxic, highly specific and sensible. Used together with other diagnostic methods, they make the diagnosis easier in brucellosis and Tulemia. They are used in vaccine-teraphy, too.

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J. Parnas, A. Chodkowski, T. Mierzejewski, K. Łazuga

ANTIGENOUS STRUCTURE OF GENUS BRUCELIA.

111.

Zeszyty Probl. Nauki Polskiej, 1957, X. Warsaw.

The authors discuss the structure of Brucella antigen, along-side the following points:

1. Classification and enumeration of the *Brucella bacillus*, according to Bruce, Frema, Evans, Miles, Toplay, Wilson, Bange, Zdrodowski, Lisbonne, Renoux and others.
2. Conceptions, concerning the structure of the anti-gene surface stratum, and the inside of *Brucella bacillus* cells.
3. Own investigation results about the structure of antigenic varieties of *Brucella brucei*, appearing in Poland.
4. A trial of transforming the variety of marks in *Brucella brucei* in vitro.
5. Immuno-chemical test.
6. The variety of colony forms in *brucella bacilli*, and their antigenical properties.

Thus, the authors are on the way to discover a science, treating the antigenical structure of *Brucella bacillus*. The authors' starting point was to find a classification for the *brucella bacillus*, unifying their work with the enumeration for the bacillus. The tests need to be deepen, in order to find a quantitative delineation. Investigations, concerning the structure of sacharits, multisacharits amino-acids, have been initiated.

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J. Parnas, I. Mierzejewska, A. Lamirska

INVESTIGATIONS ON THE SPECIFICITY OF THE OPSONOPHAGOCYTIC INDEX IN THE COURSE OF BRUCELLOSIS. 113.

Annales UMCS, Vol. XII, sec. D, 1957, p. 79.

In order to clarify the problem of specificity of the opsonophagocytic reaction in man and experimental animals infected with Brucella, investigations were undertaken, concerning 32 patients with chronic brucellosis, 63 control patients from the Infectious Diseases Clinic, 66 control patients from the Internal Diseases Clinic, 18 rabbits experimentally infected with brucellosis and 57 guinea-pigs infected with brucellosis. In guinea-pigs, in addition to the Brucella brucei antigen, the following antigens were used in the opsonophagocytic reactions: Pasteurella tularensis, Pasteurella multocida, Escherichia coli, and B. proteus. Values obtained from the separate experiments were computed according to the Huddleson and Foshay methods, and then subjected to statistical analysis by means of the scatter diagram method, the frequency polygon method and the error percentage diagram method.

The investigations point to a considerable specificity of the reactions, especially when the specificity limit for the Huddleson index is fixed at  $\pm$  17 - 20, and for the Foshay index  $\pm$  28.

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J. Parnas, R. Kozakówna

EXAMINATIONS CARRIED ON BRUCELLA VARIABILITY. 114.

Archives de l'Institut Pasteur de Tunis, 1958,  
35, p.179.

In the tests performed on the Brucella strains in Poland, the authors settled, that in Poland the following strains exist :

Strains typical abortus

- " non typical abortus
- " typical suis
- " non typical suis (danish)
- " typical melitensis
- " non typical melitensis.

The results about the variability and the significance of biochemical, serologic and bacteriostatic properties of Brucella are in accordance with G. Renoux data.

The authors investigations do correspond with those, having been performed in Lisbonne - concerning the possibilities in evoking biochemical, bacteriological and serological changes of the Brucella strains properties.

We tested a Soviet bacteriophage "Tbilisi" on typical abortus strains, suis and melitensis strains, and on 14 Brucella strains of our own collection. We observed that it:

- a) lyses abortus strains,
- b) doesn't lyse melitensis strains,
- c) doesn't lyse suis strains of american proven,
- d) doesn't lyse bovis strains resembling the danish strains,
- e) doesn't lyse bovis strains which show atypical reactions with Hoddleson test.

It seems that the bacteriophage anti-Brucella in contradiction to antisalmonella bacteriophages and anti-Shigella

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bacteriophages doesn't play a great role in epizootological and epidemiological diagnosis, but may be used for microscopical tests.

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J.Parnas, T.Mierzejewski

SOME BIOCHEMICAL AND IMMUNOBIOCHEMICAL STUDIES 115.  
ON BRUCELLA BRUCEI.

Acta Microbiologica Polonica, 1958, 7.

From the bacterial mass of Brucella various biochemical fractions were obtained by extraction and precipitation. HCl fractions were avirulent for white mice and guinea-pigs. Fractions I, Ix, A and B obtained from culture fluid were active in complement fixation test. They were also very active in allergic tests. Their antigenicity was shown in experiments on rabbits.

The titer of antibodies in guinea pigs after I and B was very low. Ten fractions isolated from bacterial cells were less active in serological and allergic tests. The chemical analysis of isolated fractions gave results similar to those referred to in previous paper.

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J.Parnas, T.Mierzejewski

RESULTS OF FURTHER BIOCHEMICAL AND IMMUNOBIOCHEMICAL INVESTIGATIONS OF BRUCELLA BRUCEI. 116.

Zbl.f.Bakt.I.Orig., 1959, 174, 7/8, p.559.

Former immunochemical studies published in 1956 in this Journal, were now supplemented by the isolation of new

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polysaccharides fractions and peptical saccharid complexes of *Brucella brucei*. These fractions were evaluated in rabbits sensitized with *Brucella* allergen, using own bruceline PD and allergens from abroad: Melitin (Institut Pasteur, Paris), Melitin (Mirri-Italy), Bruceline PEBA (Ottosen and Plum, Copenhague), Bruceline (Molinelli, Buenos Aires), Brucelin F (Kolar, Czechoslovakia) and Brucelin (Mossimann, Switzerland).

These studies have proved that in rabbits Bruceline PD is the most sensitive and most specific preparation.

Similar results were obtained in human patients suffering from brucellosis. Immunoochemical fractions of own production did not equal Bruceline PD. Other preparations, especially Bruceline of Mossimann, Bruceline Molinelli, Bruceline PEBA and Bruceline F showed the necessary specificity, but produced poorer reactions than bruceline PD. Thus some cases of brucellosis may be overlooked when these preparations are used in allergic tests.

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J.Parnas

EXAMINATIONS CONCERNING THE ALLERGY AND ALLERGENES 117.  
IN THE COURSE OF BRUCELLOSIS.

Revue d'Immunologie, 1959, vol.XXIII, No.1-2.

The author performed those tests in order to explain the immunobiological state of allergy of brucellosis, in experimental animals, in men and in domestic animals.

The practical meaning of the investigations was to find a certain allergen, which could be used in practical diagnose for brucellosis in men and animals.

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Many comparative studies have been performed with brucellin PD, pure chemical and imported allergenes. Brucellin PD ad usum humanum showed to be the best preparation - as it is specific, sensible and not harmful to men.

Veterinary doctors and breeders, clinical and laboratory workers tested and observed through many years brucellin PD and its influence. A special commission of the Ministry of Health confirmes the use of brucellin PD. In our country the preparation is the only one being used in diagnostic of men.

Scientists devoted many years for laboratory and clinical tests, in order to prepare a suitable allergene PD ad usum humanum.

Breeding investigations showed, that brucellin PD ad usum veterinarium is conform to the practical veterinary requirements.

J. Parnas

EXAMINATIONS CONCERNING THE ALLERGY AND ALLERGENES 118.  
IN THE COURSE OF BRUCELLOSIS.

Revue d'Immunologie, 1959, vol. XXIII, Nr.1-2.

Our investigations, of many years standing, have been performed in order to enlight the immunobiology of the allergic state, in the course of brucellosis in wild animals, men and domestic animals. The practical aim of these investigations was to describe the preparation of the allergene, which may be an exact and competent diagnosis method, in human and animal brucellosis. Our work presents numerous experiments for the comparison of brucelline PD with clean chemical and other kinds of

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allergenes, like Argentine, Italian, French, Swiss, Danish, German and Czechoslovakian ones. Many clinical and laboratory researches have been performed through many years, by breeders; and veterinarians have used brucelline PD "ad usum humanum"; finally Pd brucelline has been accepted by a special Commission of the Ministry of Health. The members of the commission were most prominent erudits of Poland; they have studied biological preparations, and were interested in medical Theory and Practice in Poland.

Brucellina PD "ad usum humanum" is the only allergene, used for diagnosis in our Country. Many years have been devoted to clinical and laboratory researches, in order to gain a preparation, being fit as allergene for brucellosis, "non ad usum humanum", which could be used in human treatment.

Tests, having been performed in breeding showed, that brucellina PD ad usum veterinarian, is fit for veterinary practise.

J. Farnas, A. Chodkowski

STUDIES ON THE VIRULENCE AND IMMUNOGENIC  
PROPERTIES OF BRUGELLA BRUCEI STRAINS FROM  
THE POLISH COLLECTION.

119.

Archiwum Immunologii i Terapii Doświadczalnej,  
1959, VII, p.29.

The standard strain S<sub>19</sub> is not free of virulence for guinea-pigs in the first stage of infection. In the next stage this strain is markedly immunogenic and protects guinea pigs against the consequences of infection with the virulent 544 strain.

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The standard strain 45/20 is apparently quite avirulent for guinea-pigs, retaining its immunogenic properties against the infection with the virulent strain 544.

PD strain is less virulent for guinea-pigs than  $S_{19}$  strain, its immunogenic properties being similar to those of  $S_{19}$  and 45/20 strains.

The comparison of the PD strain virulence with that of the Soviet strain BA, has proved a great similarity of these two avirulent strains. It is likely that among the *Brucella brucei* strains under examination this is the very strain which deserves further studies in order to find out whether it could be used for the production of a living, avirulent and immunogenic vaccine against human brucellosis.

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J.Parnas, L.Łysikowska, T.Kuziela

ON THE RELATIONSHIP BETWEEN THE SENSIVITY AGAINST 120 ANTIBIOTICS, THE VIRULENCE AND METABOLISM OF BRUCELLA BRUCEI STRAINS.

Zblt.Bakteriol. I.Crig. 1960, 180, p.69.

By the means of Szybalski's method, 12 strains of *Brucella brucei* were obtained that showed resistance against Streptomycin (10.000 gr.) and 15 strains that were resistant against Aureomycin (500 - 1000 gr.). The resistant strains were controlled for 16 months. Those strains resistant to Streptomycin showed stability in this respect, while those resistant against Aureomycin showed instability.

The group of Streptomycin resistant strains showed on each of the comparisons with the same group of original strains a biochemical change in urease and catalase activity and in

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the formation of  $H_2S$ . The differences were in the greater activity of the two ferments, and in the greater production of  $H_2S$ . The latter, however, was present for only a short time. Special bacteriostatic and serological changes were not noted. The group of Aureomycin resistant strains showed similar changes.

The strains of *Brucella*, which had reached a high degree of virulence, also showed a greater urease activity when compared with the original strain. The catalase activity differed.

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J. Parnas, W. Szmuness

THE PARTICULAR ASPECTS OF THE EPIDEMIOLOGY OF  
BRUCELLOSIS IN POLAND.

121.

Archives Inst. Pasteur, Tunis, 1960, 37, p. 457.

This work is a syntetical study of Brucellosis in Poland. The authors gathered some hundred enquiries about the disease, and do present its clinical picture. The results shown in this work, took long years to gather them, as well as the rich antropozoon material of the State Institute of Rural Occupational Medicine and Rural Hygiene, of the Ministry of Health and Welfare, the Ministry for Agriculture and so on.

The authors describe this epidemic in overlook and its situation all over the world and base their reflections on the data of W.H.O. (World Health Organization), in describing the situation in every country, especially in the neighbour countries of Poland. As for Brucellosis one can say that's especially the cattles, which

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play a great role in this epidemic, because of the *Brucella bovis* which is the cardinal infection.

Horned cattle showed the highest percentage for positive reaction in Brucellosis, the percents oscillated from 5,57 - 22,85 %. The infection's centres were the great breeding farms. One could register 715 cases of this disease in people, but they really were more. The disease has been registered in every district and arrondissement. A half of the men were workers of the Veterinary Service; men working in State Rural Farms, showed also a high percent. As for townpeople, we found 22 % of ill men. Infection percentage: 41,33 % - Veterinary Service

8,9 % - State Rural Farms.

People having worked more than 5 years, were in generally ill. The authors give a tentative classification for the infection way, in our conditions, and found that 72,62 % of the disease were provoked by the kind of their work and the near contact with cattle ; the infection danger is especially great, when cows calve. Milk showed 18 % for infections. The great percentage of ill workmen are of course an economic loss for the whole rural State-Household. A million of farmworkers had been ill during the year, and 900 people had been in hospitals. The authors mention the chief causes, which do favorize the *Brucella* infection and try to find a way out of this rural epidemic. They want to find the right manner for fighting with this disease, which should be adapted to our Polish conditions.

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J. Parnas, W. Zwolski, K. Burdzy, A. Koślak

ZOOLOGICAL, ENTOMOLOGICAL AND MICROBIOLOGICAL  
STUDIES IN NATURAL FOCI OF ANTHROPOZOOONOSSES.  
BRUCELLA BRUCEI INTO HOPLOPLEURA ACANTHOPUS  
BURM.

122.

Archives de l'Institut Pasteur, de Tunis, 1960,  
37, p. 195.

Systematic zoological and ecological examinations were performed in 1953 and 1959 in some natural foci of anthro-  
pozoonoses in areas of Szczecin and Lublin districts.  
3350 small mammals and birds were examined in Szczecin district and 4700 in Lublin district.

From 220 mammals trapped in areas of the Lublin district we gathered the ectoparasitofauna which was represented by 507 ticks (Ixodidae), 4057 lice, 1946 fleas and many, many thousand of other parasites.

They were performed with the aim to demonstrate the existence of Brucella or Leptospira in ectoparasites obtained from *Mirotus arvalis* found in natural foci of these diseases. 677 Laelaptidae, 9 fleas and 299 Hoplopleura acanthopus were examined: all results were negative.

When guinea-pigs, white mice and *Microtus arvalis* were artificially infected with *L. grippotyphosa* and then larvae or nymphs of *Ixodes ricinus* were fed on these animals, we were unable to recover Leptospira from these ticks.

*Laelaptidae*, *Ctenophthalmus assimilis* and *Hoplopleura acanthopus* gathered on the animals give the same kind of negative results.

Very interesting results were obtained in the field of brucellosis. Namely lice, *Hoplopleura acanthopus* were gathered from *Microtus arvalis* artificially infected with virulent strains of *Brucella brucei*. From these lice, pure

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culture of Brucella were recovered. This result shows the possible role of lice in the epizootiology of brucellosis.

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J.Parnas, W.Zwolski, K.Burdzy

INFECTION OF POLYPAX SPINULOSA AND HOPLOPLEURA  
ACANTHOPUS LICE WITH BRUCELLA BRUCEI.

123.

Wiadomości Parazytologiczne, 1960, VI, p.442.

The authors inoculated peritoneally *Brucella brucei* S<sub>19</sub> strains, 1330 (Traum), M 16/8 and 24/39 as well as 544/38 into a range of experimental animals, as *Microtus arvalis*, *Rattus norvegicus*, *Mesocricetus auratus*. The animals have been imbibed with *Hoplopleura acanthopus*, *Polyplax spinulosa*, *Camasides*. After 6 days of the infection every rodent has been separately combed and cleaned. *Hoplopleura acanthopus* has been smashed and set on platelets with Braun's medium. The authors could state, a high sensibility of the lice, *Polyplax spinulosa* Brum reacted strongly on the infection with virulent *Brucella brucei* bacillus. The authors stated the high sensivity of *Hoplopleura acanthopus* lice on the *Brucella* infection, performed with a non virulent S<sub>19</sub> strain.

We failed in infection investigations with the *Brucella* bacillus of *Gamasides*, which affirmed the results of earlier tests. Izolated strains of *Polyplax* lice *spinulosa* Brum, didn't differ at all. They showed the same colony structure, the activity of their enzymes in H<sub>2</sub>S production, sensibility against thionine and fuchsin as all the other strains before being introduced into the organism of their support - the louse.

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the hamsters *Mesocricetus aureatus* were not so sensible, even against the very virulent infection by *Brucella brucei*. The results of these researches speak for that lice may play a great role in the *Brucella* disease among animals.

J. Parnas, D. Gieratowicz

NEW INVESTIGATIONS ABOUT THE ACTH INFLUENCE ON  
IMMUNOLOGICAL PHENOMENA IN THE COURSE OF  
BRUCELLOSIS.

124.

Revue d'Immunologie, 1960, XXIV, 4, 566-574.

The authors investigated the influence of ACTH on the run of brucella infections. Four days after the immunisation, they performed a serologic and opsono-fagozytic reaction. The investigations had been performed on rabbits and guinea pigs, which had been immunised with the virulent strain 24/18 and ACTH of Polish production; the ACTH has been given intramuscular. After six days the animals had been immunized by means of bacteria suspension. The agglutination reaction, the Complement Fixation Test and the opso-fagozyte test had been performed in determinated intervals.

The authors observed the immunobiological reaction, by applying ACTH injections together with a virulent *Brucella* strain, and after an injection of the nonvirulent S1B strain.

The curve of the Complement Fixation Test was similar to the curve of the agglutination titer. The fagozytose and the index number had been smaller in animals which had been immunized with ACTH as in those, of the control-

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group. The Burnet reaction has been stimulated by ACTH. The authors didn't find bacterias in the spleen of these animals, nine months after the experiment.

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J. Parnas, E. Kotlińska

VARIABILITY OF STREPTOMYCIN RESISTANT BRUCELLA BRUCEI STRAINS. 125.

Bull. Acad. Polon. Sciences, 1960, Cl. II, Vol. VIII, p. 463.

1. With the aid of Szybalski's method 12 Brucella brucei strains resistant to 40.000 gamma of streptomycin in 1 mg of medium were obtained.
2. These strains, as compared to the respective parent strains, showed the following properties:
  - a) urease activity higher in 42 % and virtually unchanged in the remaining variant strains,
  - b) higher catalase activity,
  - c) shorter lasting hydrogen sulphide production, and in some strains more intensive blackening of the paper strip,
  - d) unchanged sensitivity of fuchsin and thionine, and diminished sensitivity to DEDTC,
  - d) increased susceptibility to the lytic action of anti-Brucella phage, as may be seen from the Table, eight phage immune parent strains gave streptomycin resistant variants highly susceptible to the phage's lytic action.

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J. Parnas, R. Kozakówna, K. Burdzy

MICROBIOLOGICAL CHARACTERISTICS OF 62 BRUCELLA 126.  
BRUCEI STRAINS OF SUIS VARIETY.

Bull. Office International des Epizooties, 1960,  
T. 53, 3-4, p. 298.

In the own collection of Brucella strains we collected 62 strains determined as suis. They were sent to our laboratory from Polish areas and from foreign countries as well. All the strains underwent the precise microbiological analysis and confirmed that 4 strains have atypical characteristic sign for suis, 8 strains were atypical and 7 were determined as intermedia.

$H_2S$  production formed in majority of strains for a suis variety: 14 strains do not produce  $H_2S$ . The part of them is for atypical varieties. The urease, average founded in limits characteristic for a suis variety, but there is atypicality in this domain. It is likely in the action of anilin dyes.

The examination on the phages action does not give the base for division of the strains into the phage types or for drawing conclusions. Beside the strains on which a few phages only act, obtained the phages such on which acts only one. From some suis strains there are obtained the phages.

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J. Parnas, E. Kotlińska

FURTHER STUDIES ON THE METABOLISMUS AND THE VARIABILITY OF BRUCELLA-BRUCEI STREPTOMYCINE RESISTANT STRAINS. 127.

Monatshefte für Veterinärmedizin, 1961, 16, 2, 41-45.

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1. By the aid of Szybalski method we obtained 12 *Brucella-brucei* strains, resistant on 40.000 of streptomycine. In the previous examinations we used *Brucella* strains resistant on 10.000 of streptomycine and  $\pm$  1000 aureomycine.
2. The resistant on 40.000 strains in comparison with the analogical-origin strains, showed in present examinations the following changes of their properties:
  - a) Urease activity was in 42 % examined streptomycine resistant strains most highly and in other strains as such same as in original strain.
  - b) Catalase activity was greater in resistant on streptomycine strains, than in original strains.
  - c) The  $H_2S$  production was shorter in streptomycine resistant strains. Some of them showed the greater intensity of blacking of filter paper.
  - d) The impressiviness on the basic fuchsine, tiofine and DEDTC preparate: there was not confirmed in the essential differences in impressiviness on the tiofine and basic fuchsine. The resistant and original strains, however, very distinctly appeared the less impressiviness on the DEDTC preparate.
  - e) The change of impressiviness on the lytic anti-*Brucella* phage action: the streptomycine resistant strains showed greater impressiviness on the lytic phagic action than original strains. 8 strains non-impressive on the phage action, showed the great impressiveness after obtaining of streptomycine resistance.

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A.R.Tuszkiewicz

## THE BRUCELLOSIS PROBLEM IN POLAND.

128.

Zdrowie Publiczne, 1953, 6, p.41.

The two first cases of brucellosis, noted in Poland, have been described by Legeżyński, in 1928. During the following years, about 30 cases of this disease have been described and published.

Chronic brucellosis was formerly not known in Poland - and not diagnosed, until the begin of researches, performed by the Institute for Rural Work and Hygiene in Lublin (1952).

The first to given an impulse for those researches was prof. J. Parnas. The researches on the first stage were made in order to find out the terms on which this disease occurs. Researches in mass, were made among workers, being professionally exposed to brucellosis, like people working in Health and Veterinary Service, as well as men working in cattle-breeding.

The brucellosis problem in Poland and the necessity of establishing a researche-centre in Lublin has been taken in consideration. The following direction lines for research were proposed:

1. Unity of diagnostic methods in Poland, for the discovery of brucellosis.
2. Management of ground-researches for brucellosis, by the help of District Sanitary Epidemiology Station, collaborating with the Institute.
3. Level elevation, for diagnostic and therapy.
4. Elaborates of principles, for prophylactic therapy.

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A.R.Tuszkiewicz, W.Szewczykowski

ABOUT DIAGNOSIS, COURSE AND TREATMENT OF BRUCE- 129.  
LLOSIS OBSERVED ON A BASE OF 50 CASES.

Annales UMCS, Sectio D, 1953, T.VIII, p.231.

On the base of observation, 33 cases, active brucellosis (17) and cases of inactive brucellosis, performed in the Clinical Section of the Institute, we were able to definite the clinical character of brucellosis in Polish people, as well as our treatment results.

This disease shows a rather mild, though chronic and obstinate run. First of all we could state joint pains or joint-muscle pains, weakness and sweat. Objective periodical symptoms, were periodical subfeverish or feverish states, weakness and sweat. No more serious complications occurred during the run of the disease, as such ones which were remarked in brucellosis melitensis, like: endocarditis, menengitis, damages in the circulation system, lung infiltration, and so on.

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A.R.Tuszkiewicz, W.Szewczykowski

CLINICAL PICTURE OF BRUCELLOSIS IN POLAND. 130.

Medycyna Pracy, 1954, T.V, p. 121.

We show the clinical picture of brucellosis in Poland on the base of observed cases, emphasizing it's professional character in our Country. 90 % of this disease were consequences of professional infections, of which 10 % couldn't be confirmed. The infection follows out by attending cows; it occurs through skin-infection, when people are touching bare-hand the reproductive organs of cows suffering of brucellosis. First of all, we could remark this disease at

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Veterinary and Health Service workers, as well as at Zootechnics, and the often at peasants being in contact with ill cows.

Raw milk isn't in generally a source for infection in Poland.

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A.R.Tuszkiwicz, W.Szewczykowski

THE JOINTS-SYSTEM OF PATIENTS SUFFERING FROM  
BRUCELLOSIS.

131.

Polskie Archiwum Medycyny Wewnętrznej, 1954,  
T.24, p.898.

This work leads on an observation of 50 cases of chronic brucellosis. 80 % patients showed joint pains, which in general were not very intensive, they felt the pains in several joints at once; sometimes the pains showed a characteristic symptom, of generally feeled joint-muscle pains. The patients plainted often about pains in the vertebral column, and in the environment of the sacro-ilia. The intensity and the yield of pains runned parallel with other symptoms in brucellosis. We may say, that pains were very strong, at the time of exacerbation of the disease. In any case the pains showed symptoms of joint-inflammation, i.e., swollen joints, flushing, or higher temperature upon the joints.

Radiological changements were not found, except in sacro-ilia joints. The differential of diagnosis for rheumatic joint-inflammation, the behaviour of OB is always of great valor, if it is regular or a little faster. Pains did weakly react on salicylans, and somewhere better on brucellosis and bruceline.

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A.R.Tuszkiewicz, W.Szewczykowski

CHANGES IN THE SACRO-ILIA JOINTS IN BRUCELLOSIS. 132.

Polskie Archiwum Medycyny Wewn., 1955, T.25, p.835.

We remarked changes in the sacro-ilia joints, which often occur on the chief plane among brucellosis symptoms in Poland. We often remarked them among 50 observed patients (32%). These changes evoked strong pains and stiffness in the sacro-ilia environment. Physical researches confirmed that the joints reacted painfully onto percussion; they further show a limited mobility.

Radiological tests showed a stenosis of the joint-fissure outlines, and sometimes its very obliteration, inequality and overlap of the joint-fissure outlines, and sclerosis of the bone-substance in the environment. Pains in the sacra environment belonged to the most obstinate symptoms of some patients; they often returned in spite of brucellosis, and symptomatical treatment.

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A.R.Tuszkiewicz, M.Błażewska

CHANGES IN THE URINARY GENITAL ORGANS OF MEN, 133.  
EVOKED BY BRUCELLOSIS.

Przegląd Epidemiologiczny, 1956, 10, p.219.

We observed inflammations at the urinary-genital organs in 9 men (11%), tested and observed among a group of 82 men suffering of Brucellosis, namely orchitis with epididymitis, several cases of funiculitis, cistitis, or uretritis. Four patients plainted about testicle pains; those didn't show edemas. The inflammation occured generally at the begin of the sickness, and withdrew from time to time in convalescence periods, but returned with the exacerbation of the disease.

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Two patients showed irreversible changes, i.e., atrophy of one testicle; the second patient got a hard and big tuber on the testicle (testiculoma). These tubers lasted for 8 years.

Treatment results, antibiotics and brucelina, were doubtful. We want to emphasize that physicians should remember that there is a possibility of brucellose etiology, in cases of inflammation of the genital organs in men.

B. Szwarc

**EYE MANIFESTATIONS IN THE COURSE OF BRUCELLOSIS. 134.**

**Postępy Okulistyczne, 1956, 3.**

In a general discussion on the clinical picture of acute and chronic forms of brucellosis, attention has been called to the eye complications. The lesions of the organ of vision caused by brucellosis do not show any specific characteristics, which would allow to distinguish them from the lesions of a different origin.

The establishing of brucellosis etiology in eye diseases is based on the diagnosis of brucellosis made in consideration of the whole syndrome of symptoms, which are characteristic of it. The results of auxiliary examinations have a great significance for the diagnosis. In the course of infection with brucella most common are, according to the data from literature, lesions localized in the cornea and in the uvea. The lesions in the retina, in the optic nerve or in the eye muscles are, according to the literature, less frequent.

The author presents the results of personal investigations in the direction of brucellosis, carried out on 8 patients

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with keratitis nummularis and on 124 with iridocyclitis. In 2 cases with iridocyclitis positive serological reactions and positive Burnet's allergic reaction were found.

In describing the treatment, the efficacy of applying such antibiotics as aureomycine, chloromycetine and terramycin, as well as the efficacy of combined treatment with antibiotics and brucellin PD are emphasized. The application of streptomycin combined with sulfonamides is also efficacious.

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A.R.Tuszkiewicz

FORMS OF BRUCELLOSIS.

135.

Przeglad Epidemiologiczny, 1956, T.10, p.229.

The author presents a project of his own, for a division of this disease in several forms; he always uses this tabela, because it is very suitable for the clinical work. The tabela leads on clinical criterions and decides which kind of treatment may be the best one.

The diagnostic for active brucellosis leads upon the statement of clinical diseases, or upon a brucellosis culture, made out of blood or organisical liquid. This kind of form is then treated quite absolutely. The non-symptomatical positive-serological form is marked by a positive serological reaction, by the lack of diseases symptoms.

The treatment is unfounded. However, patients should be periodically controlled because this disease form maybe a latent period in the run of chronic brucellosis. Our observations showed, that the titre of agglutination reaction is higher than 1/200, as it generally points on the active process in the sickness.

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The third fundamental form is allergy on the Bang bacillus, by the lack of clinical symptoms and negative serological reactions. One cannot really name it the very disease. The allergy shows us only, that these persons have been in contact with the Bang-bacillus. A positive Burnet reaction occurs among the whole of Polish population in 1 %, and in different groups of workers, being professionally exposed to brucellosis, in 10 - 50 % of cases. The characters of several brucellosis forms, according to the classification, shows the following tabela.

t a b l e

Form	Clinical symptoms	Sero- logical reac- tions	Burnet's reac- tions	Opsono- phagoc. indic.	Remarks
<b>A. Active Brucellosis</b>					
a) acute a. subacute	++	+++	+	+	on the first plane gene- rally disease symptoms
b) chronic (primary a. secondary)	+	- to +++	++	++	on the first fall plane organic in ex- orba- tion periods
<b>B. Inactive Brucellosis</b>					
a) serological positive asymptoma- tic	-	++	++	+++	
b) metabruce- losis	+	-	- or +	?	organic sympt. are consequ. of disease in the past
<b>C. Sensibilisation</b>					
state on Brucella	-	-	+++	?	there can oc- cur skin sym- toms of aller- gical charac- ter
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A.R.Tuszkiewicz, R.Kujawa i H.Zochowska

THE FUNCTION OF LIVER IN CHRONIC BRUCELLOSIS. 136.

Annales UMCS, Sectio D, Vol. XIII, p. 119, 1957.

Functional liver tests were carried out in 15 patients with chronic brucellosis not accompanied by fever or any more pronounced pathological symptoms. The test complex consisted in determining: albumin and globulin level in blood serum, cadmium reaction, thymol reaction, Hanger's reaction, bilirubin and alkaline phosphatase level in blood serum, and Quick's oral test for hippuric acid. Deviations from normal in one or more tests were found in all the patients. In 7 persons the so-called protein tests only were positive; in 5 patients positive protein tests were accompanied by a slight increase of bilirubin level in blood serum (0,5 up. to 1.1 mg %), and in 3 others by a decreased excretion of hippuric acid in urine. In the majority of patients there was an increased level of globulins in blood serum connected with a decrease of the albumin-globulin index. Among the protein tests the cadmium reaction was most frequently positive (10 patients).

The authors compare the results of their research with those of other investigators.

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A.R.Tuszkiewicz, W.Szewczykowski

A CLINICAL PICTURE OF CHRONIC BRUCELLOSIS IN 137.  
POLAND.

Polski Tygodnik Lekarski, 1957, T.12, p.341.

This work describes the symptomatology of additional research-results as: run and negotiatio, forms, recognition

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and differential recognition of brucellosis in Poland - lead on observations among 115 cases, carried out in the Clinical Section of the Institute. 85 patients (73 %), were veterinary workers and zootechnics of the Health Service; 22 workers (20 %) were employed at cattle breeding; only 8 patients worked in other professions.

We recognized:

Brucellosa acuta	6 cases
Brucellosa subacuta	7 "
Brucellosa primordial	154 "
Brucellosa protracted repeated	48 "

Only in two patients brucellosis was brought out, one from the patient's blood, the second from the bone-marrow. These results accord with results of other authors. They too, could occasionally gain a positive inoculation of chronic brucellosis, called out from brucella abortus bovis. The agglutinous reaction was positive in 71 % cases, doubtful in 17 % cases, negative in 12 % cases. The reaction of the complement showed out infection in 10 % of the cases, where the reaction agglutination was negative or doubtful; Burnett's reaction showed to be negative only in 5 patients.

The base for recognising brucellosis in Poland are: professional danger, periodical unregular increase of temperature, muscle and joint pains, increase of liver and spleen, positive serological reaction and positive Burnett reaction, together with a regular clinical picture of leucocytes and the positive Biernacki reaction. Because of the mild run of this disease in Poland, one can easily overlook on it, or take it for a grippe during fever-periods. The disease often shows the form of a pseudo-neurasthenic unit. On the other hand, one often recognizes brucellosis too promptly, and that on the base of a positive Burnett reaction and a weak positive serological reaction.

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If the clinical picture shows out (on the first plane), organic complications as: spondylitis, radiculititia, arthritis, sacro-iliaca, or orchio-epidemitis, and general symptoms of brucellosis, it may occur that one can't recognize the brucellosis etiology of the disease.

A.R.Tuszkiewicz, W.Szewczykowski

SYMPTOMOLOGY OF CHRONISTY BRUCELLOSIS IN POLAND. 138.

Presse Medicale, 1958, 66, 1343, T.59.

A syntetical collection of 161 cases being observed in the clinical division of the Institute.

The majority of patients were workers whom their profession exposed to brucellosis (90 %).

The following tabela shows us the symptomatology of the observed cases.

<u>S y m p t o m s</u>	<u>Subjective symptoms</u>	<u>Number of cases</u>	<u>Percent</u>
fever		114	71
sweat		112	70
joint-pains		99	61
astenia		98	60
pains in the environment of the sacrum		75	40
head-aches		57	33
myalgia		50	31
Exema on the hands in the course of the disease		48	30
testicle pains (153 men)		20	13
nervious exitation		11	-
fall of body-weight		7	-

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<u>S y m p t o m s</u>	<u>Number of cases</u>	<u>Percent</u>
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pains in liver environment	9	-
pains in spleen environment	2	-

Objective signs

liver-increase	153	75
palpated spleen	118	73
arthritis sacro-iliaca	28	18
skin-exemas	10	6
orchio-epidymitis	10	6
Spondylitis	3	-
Perisplenitis	2	-
Perihepatitis	1	-

The course of Brucellosis in Poland is generally a mild one; the general state of health is a good one, the tongue is clean, there are no changes in the body-weight, the puls and blood-pressure. We note long periods without fever, and short ones with a light increase of temperature. The patients are often something like at the limit of health and disease, they can work, but their efficiency is of course smaller. The disease is long lasting and obstinate. We note recidives even in patients, treated a long time by antibiotics of a large spectrum of activity, and by bruceline. Some patients are ill for 4 - 6 and even for 8 years. A constant consequence, in occasional cases, is a vertebral deformation and testicle atrophy; but they are rather rare.

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C. LEPTOSPIROSIS.

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J. Parnas

THE ORGANIZATION AND METHODS OF INVESTIGATIONS ON 139.  
 SWAMP FEVER IN THE PROVINCE OF LUBLIN. A FIELD  
 TRIAL IN 1955 - 1957.

Przegląd Epidemiologiczny, 1958, XII. No.1, p.1.

Swamp fever is a disease long known in the country surrounding Lublin. A scientific expedition in which workers from a number of scientific institutes and from the health service took part was organized to elucidate this problem as far as possible. Benefiting from the experiences of other countries in organizing this kind of research, a number of laboratories were set to work and appropriate tasks were divided among them.

Ecological and zoological laboratories succeeded in preparing maps of the distribution of various species of small mammals. A microbiological laboratory carried out investigations on rodents, domestic animals and humans. A clinical department equipped with an analytical and biochemical laboratory, elaborated 406 cases of illness treated in hospital. The meteorological and climatic observations were intended to discover any possible connection of the factors with the multiplication of small mammals and the epidemiological phenomena. A histopathological laboratory examined the histopathological changes in animals living in the wild state or infected experimentally. A veterinary laboratory investigated the role of farm animals in the epidemiology of leptospirosis. The soil and water were also examined, as was the role of the environment in the development of leptospirae. An entomoparasitological and epidemiological laboratory was also started.

The results of this are given in separate publications.

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J. Danielski, B. Wawrzyszuk, A. Stankiewicz, M. Kowalczykowa

THE SANITARY HYGIENICAL STATE OF THE VILLAGE 140  
NIEMIROWEK.

Annales UMCS, 1958, Sectio D, Tom XIII, p. 394.

In this village was in 1955 an outbreak of leptospirosis epidemic. Our work describes the investigation results about the sanitary-hygienical conditions of the village. These tests have been performed by scientists of the Institute for Rural Hygiene and Medicine, in August and September 1955.

They grounded their evaluations of the sanitary hygienical state on the topographical, geo-hydrological, climate, demographical, social, economical, sanitary and epidemiological focal investigations. They tested the medical, hygienical and sanitary epidemiological watch. The investigations showed that geo-hydrological and climatic conditions exerce an important influence on the terrain. The terrain is watery and favourises outbreaks of leptospirosis epidemic. The dwellings are not hygienic, and the life conditions are poor. The commission stated that 32 % of dwellings, and 50,4 % of inventory and farm-buildings are quite insufficient.

People do not know the most primitive rules of hygiene, they are in general dirty (39,9 %), underwear is seldom, and clothes even never washed and cleaned (38,2 %). This ignorance of the most primitive hygiene notion may arise out from bad and difficult life conditions, hard work, and dirty work in field and breeding. The village has no bath-installations, and people haven't been instructed about hygiene.

The chief water sources of the village are digged earth-wells (46); only 10 wells are bored. The digged wells are not covered, flat, badly settled and most of them are digged in watery meadows. The water tests showed a great

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amount of chemical pollution and bactery colonies. As to the bored wells, they were dirty too and contained harmful chemical and bacteriological material. All the wells should be cleaned and repaired. The sanation state of this area is insufficient. In 41,5 % of dwellings there were no aborts. Other aborts are badly built, and are not protected against flies and rodents. Also the dust-bins and dung-waters showed insufficient instalation. There is a lack of medicinal care and sanitary-epidemiological survey. The Health Centres are far off, their personnel is too small, and the arrondissement Sanitary Column has an insufficient location, and is not able to fulfill the work in such large and far off areas. The authors stated that one of the chief factors in leptospirosis are the watery grounds, and the lack of suitable water aprovisation, as well as the lack of sanation.

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J. Parnas

EXPERIMENTAL VACCINATION OF PEOPLE AGAINST  
LEPTOSPIROSIS.

141

Przegląd Epidemiologiczny, 1958, No. 1, p.47

According to the documentation of the Miecznikow Institute a Polish vaccine has been produced. We added two serological types which we often met in the Lublin district. *L.grippo-typhosa* and *l.sejroe*. We tested antigenic, virulent and immunogenic properties of the strains and vaccinated young rabbits. Fit strains have been multiplied on fluid medias under 28° of temper. After 8 - 10 days the cultures have been inactivated in a water bath under 56° for 30 minutes. After cooling to room temperature we added 0,3 % phenol. The following 7 days we tested the sterility of the vaccine and added strain

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cultures in suitable proportions, mixed it and filled into vials. We tested the controlled strain for sterilisation, morphology, non virulence and immunogenic properties. 15 willing people have been vaccinated - and after 6 weeks we could state the agglutination titer (1 : 1000, 1 : 8000) of antigens against *L. grippotyphosa* and *L. sejroe*.

In 1956 we vaccinated 1700 people, which lived in natural leptospirosis centres (District Lublin). We injected 2 ml, and after 7 - 10 days, 2,5 ml of the preparation. The injections were applied interdermal somewhat below the scapula. As to now we have no reports about the epidemiological results of the vaccination against leptospirosis.

J.Parnas, T.Dąbrowski, K.Łazuga, A.Koślak, M.Paroszkiewicz

MICROBIOLOGICAL INVESTIGATIONS FOR LEPTOSPIROSIS 142.  
IN MICROMAMMALIAS AND DOMESTIC ANIMALS - PERFORMED  
IN THE DISTRICT OF TOMASZÓW LUBELSKI (1956-57).

Przegląd Epidemiologiczny, 1958, Nr.1, p.29.

The tests have been performed on materials, collected from 1956-1957.

We tested 2600 micromammalias, catched in natural foci of swamp fever of Tomaszów Lubelski region. 409 animals showed a positive liso-agglutination reaction, - 142 animals in the year 1955, 22 in the year 1956, 47 animals in 1957.

Organs of the catched animals have been separated and 70 leptospire strains denoted: 40 strains *L.grippotyphosa*, 13 - *L.sejroe*, 7 *L.sorex*, 1 *L.saxkoebing*, 1 *L.australis*, 1 *L.bataviae*, and 3 *L.icterohaemorrhagiae*.

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REF ID: A2977010102

Among 4322 domestic animals (3473 mammalias, 894 birds) we denoted remarkable differences in the percentage for positive reactions in 1955 (27,9 per cent), and in 1956 (2,5 per cent); we must emphasize that the years 1954-55 had been epidemic years, and in 1956 we found only few cases of the epidemic among people. The reservoir of the leptospirosis in the region of Tomaszów Lubelski had been micromammalias, especially *Microtus arvalis*, *Mus musculus*, *Microtus rutilus* and *Arvicola terrestris*.

A.Kozicka, J.Parnas

MICROSCOPIC AND HISTOPATHOLOGIC INVESTIGATIONS 143.  
OF LEPTOSPIROSIS IN MICROMAMMALIA.

Przegląd Epidemiologiczny, 1958, XII, 1, p.9.

The authors tested micromammalia especially rodents, in the frame of a scientific expedition - performed through the area of Tomaszów Lubelski, where they found centres of leptospirosis epidemic. They tested 80 guinea-pigs, which had been infected experimentally. 890 micromammalia had also been tested by the means of Fontana method. They found in the livers, spleens and kidney tela leptospirosis in separate cases or in smaller and bigger groups, among the cellules of the animals. Microscopic investigations showed that a high percentage of them were conform to serological tests.

Preparations out of kidneys, spleen, liver, lungs, hearts and lymphatic glands had been made by the means of Lewaditi method. The authors found a characteristical system, especially in the kidney tela.

In the organs of infected guinea-pigs, they observed histopathological manifestations of parenchymal degeneration,

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small necrosis centres, singular lymphocytical and leuco-cytical infiltrations, bloody haemorrhagies in the stroma tela of parenchymal organs , with a microscopical reaction which includes the connective tissue.

The authors stated, that anatomic pathological changes in the organs of caught micromammalia without bigger necrotical centres and inflammatory infiltrations show , that leptospirosis is rather a chronic disease among these animals.

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K. Łazuga

MICROBIOLOGICAL AND SEROLOGICAL INVESTIGATIONS ON 144.  
LEPTOSPIROSIS IN HUMANS IN THE PROVINCE OF LUBLIN  
(1956 - 57).

Przegląd Epidemiologiczny, 1958, XII, 1, p.5.

In supplement to the similar investigations carried out by J. Zwierz et al. in 1955, serological reactions for leptospirosis were carried out on 158 inhabitants of the district of Tomaszów Lubelski as well as tests for the isolation of leptospirae in 18 individuals. A positive agglutination reaction was shown by 50 individuals (including 36 with L. grippotyphosa) and strains of leptospirae were isolated from 7 individuals. Two of the strains identified belonged to the L. grippotyphosa type.

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J. Zwierz, I. Durlakowa, K. Karmańska, J. Zwierzchowski,  
K. Łazuga, A. Korczyńska

INVESTIGATIONS OF THE FAUNA IN THE FOCI OF LEPTO- 145.  
SPIROSIS EPIDEMIC IN THE TOMASZÓW LUBELSKI REGION.

Annales UMCS, 1958, Vol. XIII, Sect.D, p. 421.

The scientific expedition stayed at Tomaszów Lubelski from July to the 1st November. The Department of Leptospirosis Research carried out bacteriological, serological and biological investigations. 1034 serological tests were carried out in 468 persons and 68,8 per cent of positive results were obtained. Out of 322 serologically positive individuals, 220 (68,32 %) reacted with the serotype *L.grippotyphosa*, 55 (17 %) with *L.sejroe*, 13 (4 %) with *L.saxkoebing*, 6 persons with *L.australis* B., and 2 with *L.pomona*. The titre oscillated between 1 : 100 and 1 : 4096 . In the majority of patients antibodies appeared between the 4th and the 10th day.

Bacteriological tests were carried out in feverish patients only. Out of 243 bacteriological tests performed in 225 persons, 112 positive cultures were obtained, from which 44 strains could be identified. 35 strains behaved like *L.grippotyphosa*, 8 like *L.sejroe*, and one will probably prove an independent serotype. In 69 biological tests 37 guinea pigs showed positive serological reactions. During the expeditions 919 rodents and other small animals belonging to 16 species were examined: 435 *Microtus arvalis*, of which 59 reacted serologically; 7 strains were cultured, of which one is probably a new serotype; 159 *Mus musculus*, of which 1 reacted positively; 6 strains were isolated and 2 proved to be *L.sejroe*; 75 *Arvicola terrestris*, of which 12 were serologically positive; 3 strains were isolated, among them 2 *L.serex*; 61 *Fiber zibethicus*, serologically positive 28; one strain *L. sejroe* was obtained; 32 *Apodemus sylvaticus*, 2 serologically positive; 2 strains were isolated, of which one *L.sejroe*; and the

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other *L.sorex*; 27 *Erinaceus roumanicus*, 5 serologically positive; 2 strains were isolated; 2 strains were isolated: *L.sorex* and *L.bataviae*; 25 *sorex araneus*, 1 serologically positive; 2 strains of *L.sorex* were obtained; 23 *Neomys fodiens*, 3 serologically positive; no strain was cultured; 10 *Apodemus agrarius*, 1 reacted positively; 10 *Cricetus cricetus*, 2 serologically positive; 9 *Microtus minutus*, all serologically negative; one strain was isolated; 3 *Talpa europea* - negative; 2 *Sorex minutus*, serologically negative; 1 strain of *L.sorex* was cultured; 2 *Crocidura leucodon* - negative; 2 *Mustella nivalis* - negative.

The majority of the animals reacted serologically with *L.grippotyphosa*, and then with *L.sejroe*.

The authors examined 1835 domestic animals and obtained positive results in 30,3 per cent. The animals reacted with the following serotypes: *L.grippotyphosa* 38,7 per cent, *L.icterohaemorhagiae* 21 %, *L.sejroe* 17,4 %, *L.saxkoebing* 13,3 %, *L.canicola* 3,1 %, *L.pomona* 2,6 %, *L.autumnalis* 1,1 %, *L.australis A* 1,6 %, *L.australis B* 0,6 %, *L.mitidis* 0,6 %.

The authors have demonstrated that wild and domestic animals are carriers of different serotypes of *Leptospira*. In this connection it may be supposed that the animals had a certain part in infecting the soil and water, which produced the epidemic.

W.Zinkiewicz, H.Sierosławski

MACRO- AND MICROCLIMATIC CONDITIONS ON THE ENDEMIC 146.  
SWAMP FEVER TERRITORY IN THE TOMASZÓW LUBELSKI  
REGION.

Annales UMCS, 1958, Vol. XIII, Sect.D, p. 449.

The scientific expedition of the Institute of Rural Occupational Medicine and Rural Hygiene in Lublin found a con-

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siderable intensification of swamp fever in the Tomaszów Lubelski region (Lublin district) in the year 1955. The Chair of Meteorology and Climatology of the Maria Curie Skłodowska University carried out meteorological and microclimatic investigations on the same territory.

A symposium (May 1955) on the results of leptospirological investigations in the Lublin district showed that one of the causes of the endemic were meteorological conditions which prevailed in 1955.

The average yearly temperature of the air at Tomaszów Lubelski was in 1955 lower by  $0,5^{\circ}\text{C}$  than the many-years average (1881-1930). The spring was cold (temperature of April was lower by  $3,2^{\circ}\text{C}$  than the many years average and May was colder by  $2,4^{\circ}\text{C}$ ). The summer, autumn and winter were warmer than normal (July by  $0,2^{\circ}\text{C}$ , October by  $0,9^{\circ}\text{C}$ , January by  $1,3^{\circ}\text{C}$ ). The yearly amplitude of air temperature in 1955 was  $21,6^{\circ}\text{C}$ , i.e., smaller by  $0,7^{\circ}\text{C}$  than normal. The amplitude of the yearly extremes in 1955 was  $50,3^{\circ}\text{C}$ , being the lowest in the decade 1946-1955. In the year of the marsh fever endemic one could observe small changeability of temperature in the summer, when the separate months or separate days were compared. Humidity conditions at Tomaszów also favoured the development of Leptospirae in 1955. The average yearly value of relative humidity reached 82,6 %, which was the highest record since 1958. Especially great humidity was observed in the spring and summer (April 80 per cent, July 80 per cent).

Greater water evaporation occurred in May and reached 18 per cent of the yearly evaporation amount in 1955.

In 1955 there was much cloud (70 %). August and September had most sunshine. The average value of radiation intensity of the sun in the moment of daily culmination was at Tomaszów Lub.  $0,52 \text{ cal/cm}^2/\text{min}$ . in September 1955 and was lower by  $0,17 \text{ cal.}$  than that observed in Lublin in the same

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month. The reason of the comparatively small intensity of solar radiation in the Tomaszów region was a considerable absorption of the rays by vapour.

The yearly total of rainfall at Tomaszów Lub. reached 614 mm. in 1955 and was lower by 97 mm. than the normal yearly sum of rainfall for that locality. In 1955 the lowest monthly sum of rainfall was observed in September.

In 1955 most frequent were air masses *Pc* and *Pm*. During the four years period 1952-1955 the only worm months maxima of frequency of the *Pc* masses, i.e. masses of hot and relatively dry air occurred in 1955. The complex of meteorological conditions in 1955 constituted a configuration of the separate factors which proved favourable for the development both *Leptospirae* and of rodents.

Natural conditions found in the southern part of Tomaszów Lub. region favour the development of *Leptospira* more than that of rodents because of the presence of flat marshy river valley, ponds and stagnant waters and relatively large wooded areas.

In the Tomaszów Lub. region best meteorological conditions for the development of leptospirosis occurred at Nowy Machnów, Tomaszów Lub., Panków and Niemirówek, which was confirmed by microclimatic measurements carried out in the area affected by the endemic.

F.Wysocka, J.Zwierz, L.Józefowicz, Z.Bryc, I.Durlakowa,  
K.Łazuga, K.Karmańska, T.Dąbrowski

SWAMP FEVER EPIDEMIC IN THE LUBLIN DISTRICT IN 147.  
the YEARS 1954-1955.

Annales UMCS, 1958, Vol.XII, Sect.D, p.341.

In 1955 a typical epidemic of swamp fever was observed in the Lublin district, it was more widespread than in the previous years and occurred in nearly all regions of

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the district. In the Tomaszów Lubelski region, where the investigations were conducted with special care, 552 cases were recorded. The epidemic had there a diffuse character, but its framework followed the configuration of waters and of marshland. Higher incidence was noted in those parts of the Tomaszów Lubelski region, where greater numbers of rodents were caught and where the configuration of the terrain and character of soils allowed surface waters to remain longer after the abundant July rainfall. The low sanitary and hygienic level of the Tomaszów Lubelski region was an important epidemiological factor. Labour conditions in the country were the main source of infection: hay - makers were affected most frequently.

In regions traversed by the line of works at the Wieprz-Krzna canal, there occurred cases of swamp fever. During examination of groups of workers some foci were found near the Canal. Only those workers were affected, who, besides working at the Canal, pursued also their agricultural occupations. No evidence can be therefore given of their having contracted the disease during their work at the construction of the Canal.

The course of the disease was gravest during the culmination of the epidemic. The same clinical type, in which organic symptoms, especially on the part of the liver, prevailed on the meningeal ones, was observed on the whole area of the epidemic. The disease was produced most often by *L.grippo-typhosa* (70 %), and much less frequently by *L.sejroe* (13 %). There is serological evidence that in some persons the disease was produced by *L.saxkoebing* and *L.australis B*, which so far have not been found in the human material of the Lublin district.

Short duration of antibodies was characteristic. No reccurrences of swamp fever were observed, although this is theoretically possible because of the existence of several serotypes in the endemic foci, which was proved by examination

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of the rodents. However, observations aimed at detecting possible occurrences were very scanty and should be extended in the future.

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J. Parnas, A. Feltynowski, K. Burdzy, K. Lazuga, A. Koślak 148.

**MORPHOLOGY OF LEPTOSPIRAE IN THE ELECTRON MICROSCOPE**

**Bull. Acad. Polonaise Sciences, 1958, Cl. II, Vol. VI, No. 7.**

1. The following main differences were noted in the general morphology of the 27 serotypes of leptospirae:
  - a) shape - sinuate forms predominate; in the strains *L. ballum*, *L. schüffneri*, *L. naam*, *L. pyrogenes*, *L. icterohaemorrhagia* and *L. sarmi*, the shape is straight.
  - b) ends of cells - hooked ends predominate; in *L. Ballum*, *L. schüffneri*, *L. autumnalis* and *L. sarmi*, the ends are pointed.Length and width of body, as well as number of coils, vary within particular strains.
2. Studies on morphological details of particular stages of development and growth of leptospirae revealed the following characteristic features:
  - a) the body of leptospirae consists of an axial fibre and a cytoplasm cylinder invested with a membrane,
  - b) in young leptospirae culture, there are formed conglomerates loops, and bridges, and in older cultures, spherical granules and agglutinated forms. Spherical intracellular forms probably represent nuclear material, whereas we assume that the large extracellular forms represent a stage in the proliferation and development of leptospirae.
3. The results of the studies under report are consistent with literature and cover 27 standard serotypes of leptospirae.

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J. Parnas, K. Lazuga

INVESTIGATIONS ON THE ETIOLOGY OF LEPTOSPIROSIS 149.  
AND THE EFFECTS OF ITS VACCINE ON MAN.

Bull. de l'Acad. Pol. des Sciences, 1958, VI, 1.p.29.

The results indicate that *L. grippotyphosa* is the main etiological factor of leptospirosis in humans, *L. sejroe* being else an active factor. Obviously, other serotypes of leptospirae may also occur, but their practical significance is considerably less. On the basis of the results mentioned a vaccine against leptospirae was prepared containing two antigens:

*L. grippotyphosa* (75 %) and *L. sejroe* (25 %). The killed vaccine was prepared according to the method elaborated by Prof. Varfołomiejewa of the Metchnikow-Institute, Moscow.

When tested on 20 volunteers, the vaccine proved to be innocuous and provoked the appearance of antibodies during a period of 12 to 16 weeks.

By way of experiment, the vaccine was administrated twice to 1700 inhabitants of the areas infected with leptospirosis. The process of vaccination was very mild. None of the persons vaccinated succumbed to the disease during the summer season. Investigations continue. They are the first complex investigations of this kind conducted by a scientific expedition, as well as the first vaccination of man against leptospirosis in this country.

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J. Parnas, K. Łazuga, A. Koślak, W. Zwolski

NATURAL FOCUS CENTRES FOR LEPTOSPIROSIS IN THE 150.  
COUNTRY.

Kozahskoj S.S.R. Ałma-Ata, 1960, XII, 1-14.

On the base of Pawłowski's study about complexed Centre tests performed from 1955-1959 in leptospirosis in the Lublin district.

We tested about 3359 wild animals, belonging to twenty different kinds. They have been tested by the means of agglutination-reaction, and out from 15 serums of leptospirosis. Among 3359 micromammalias, 415 showed positive serologic reactions,

in 1955	- 145 cases
in 1956	- 220 cases
in 1958	- 0 cases
in 1959	- 5 cases.

Out from the organs of these animals we got 67 leptospirosis strains

L.grippetyposa	- 38
L.sejroe	- 13
L.australis A	- 1
L.bataviae	- 2
L.icterohemoragiae	- 3
L.indefinis	- 2

The centre places for leptospirosis infections showed to be a micromammalia reservoir; the most important infection carriers were: house-mice, mus musculus, microtus arvalis, arvicola terrestris, microtus ratticeps.

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R.Wojtkowska, A.Koślak, K.Figura, R.Wajswaser, A.Lamirska

LEPTOSPIROSIS INVESTIGATIONS IN WATERY  
ENVIRONMENTS.

151

Bull. de l'Office International des Episooties,  
T.VI, No.11-12, 1959, p.843-853

The authors performed in the year 1957 investigations on the vitality of leptospirs in watery environments (Tomaszów Lubelski). They performed complex tests, including physico-chemical, bacteriological and leptospirologic investigations. 48 water samples have been tested about their physical and chemical properties. 26 water samples came from wells, 22 from an areal water reservoir, which are the very natural centres for leptospirosis. At the same time all the natural water reservoirs on the areal had been tested, too. The samples have been tested in bacteriological-quantitative manner (cultures on agar agar, in the temperature of 37°C and 20°C, during 24 and 48 h), and for Coli bacillus, too. In order to determine the titer of Coli bacillus, the authors used the fermentation method (introductory test), together with agar agar Endo (confirmation), and the biochemical IMVC proof, which serves for strain's differentiation.

36 water samples had been subdued to leptospirosis investigations, by means of three following methods: Test for a directly preparation, culture tests (media Zuelzer and biological investigation performed on guinea-pigs underground-stream method).

Complement tests of five samples, the water came directly from natural leptospirosis centres, have been infected in the laboratory, by means of leptospirosis grippothyposa. The samples were also chemically and physically tested and further-on, the authors tested the vitality of L.grippothyposa, in waters. The investigations were made under temperature of 27°C, and 37°C, by pH 7,2, 7,3 and 8.

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The results affirmed, that the water which came from natural leptospirosis centres correspond to the temperature and pH with the best life conditions for *L. grippotyphosa*. The leptospirosis tests, however, didn't confirm leptospira in waters. The cause of it were favourable meteoclimatical conditions in the year 1957, for the area of Tomaszów Lubelski. Experimental tests of infected water (*L. grippotyphosa* strains) showed clearly, that the strains had been able to live 6 days in corresponding temperature and pH conditions.

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Krakowiak T., Tarkiewicz S.

TESTING ABOUT THE INTERDERMAL-ALLERGIC REACTION 152.  
IN DIAGNOSIS OF CANINE LEPTOSPIROSIS, BY MEANS  
OF PK LEPTOSPIRIN.

Annales UMCS, 1960, Vol. XIII, Sect. DD, p. 291.

We performed investigations of the interdermal-allergic reaction, by means of Leptospirine PK. Among 54 dogs, 31 dogs have been subjected to serologic investigations, and Leptospirine PK. All the dogs have been tested and divided into two groups: A and B.

The first group contained 18 alsacian shepherd dogs, living in the same nourishment, maintain and use conditions. They came from two centres. The group B contained 35 dogs of chiefly mixed race, belonging to private persons. They too were brought up in good conditions. The dogs of group A and B have been subjected to clinical and serogical tests. For serological tests, the agglutine-lythic reaction, relative to the slide-test tube proof has been used. 15 well grown cultures have been used as antigene.

All the dogs belonging to the A group were clinically healthy, as to the dogs of group B: they have been put

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in the Clinic for Interna, because they showed diseases of the alimentary duct.

On the base of test results, the dogs of group A have been divided into undergroups a and b. Five dogs belonging to the undergroup a, showed a positive serological reaction; the undergroup b contained 14 dogs with serological negative tests, and were used as control group for interdermal-allergic investigations. The remaining dogs (35) of group B showed two positive results for serologic tests, and 33 dogs showed negative results. Ten among serologically tested 33 dogs showing negative results, were used as control group. The interdermal-allergical tests have been performed on all the dogs of group A, and on 12 of group B, among them were two dogs with positive serological reaction. So, tests have been performed on 31 dogs. The inderdermal-allergical tests have been performed by means of PK leptospirine allergene. We used for tests: PK leptospirine serotypes: L.canicola, L.grippotyphosa, L.canicola + L.grippotyphosa and in later investigations L.icterohaemorrhagiae. The leptospirine PK has been interdermally introduced into the skin of the abdomen integument, on the internal side of the abdomen. On the right of the white line 0,1 - 0,2, were introduced allergenes into three places: leptospirine strains PK of L.canicola, L.grippotyphosa, at the first investigation, and in the second one, on the place of allergene L.canicola + L.grippotyphosa, leptospirine PK with L.icterohaemorrhagiae. On the other side of the white line, has been introduced a control albumen of the same quantity. The results have been read after 1, 2, 5, 24, 48 and 72 hours.

In cases of negative reaction, the allergene leptospirine has been absorbed, and didn't leave any trace. The allergic reaction degree has been evaluated on the base of changes, which could be seen in the place where the allergene has been injected. The observations of the reactions and results have been evaluated as 1 + blushing of

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somewhat larger than 10 mm. diameter, 2 + blushing together with a minimal edema. Positive results of the interdermal-allergical reaction were stated on 7 dogs, they were: 5 A group, and 2 B group - they showed a positive serological titer. All the other dogs showed negative reactions. The allergical reaction was seen two hours after introducing the allergene and after 24 hours, too, and showed to be a very high one. During the following hours we could observe a slow yield of local symptoms, as to their entirely evanescence. They lasted as to 24 hours. The highest conditions for reading the results, lasted about 24 hours. Parallel tests, performed by means of allergenes being different leptospirosis serotypes, are not valuable arguments for a specificity of reaction of the serotype, which causes leptospirosis.

The introductory investigations point onto the diagnosis fitness of the interdermal-allergical method for outlive diagnosis in leptospirosis, in order to reveal the disease in dogs by means of PK leptospirine, and for using this method in mass dog's testing in order to find the carrier of the disease. The interdermal-allergical method, which introduces leptospirine PK into the skin of the abdomen integument is a very simple one, which allows to read easily the results.

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J.Parnas a.coll.

INVESTIGATIONS ABOUT LYPASE OF LEPTOSPIRES. 153

Zentralblatt Bakteriologie, 1960, I, Orig., 180, p.386.

The authors tested 35 strains of leptospires of the collection of W.H.O (Wolff) onto the activity in producing lipase. We used for our tests a three weeks old leptospire-culture, based on Korthoff system.

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We covered slides of length 75 - 80 mm., width 12 - 13 mm. and thickness 1 - 2 mm. with a thin stratum of sterilized fat. After laying a leptospire culture onto the slides, we put them into the incubator at 29° C where they remained for 7 days. Every day we looked at them waiting for the ablation of the fat stratum.

Ten leptospire strains didn't show lipase production. The rest, i.e., *L.icterohaemorrhagiae*, AB and A, *L.mankarso*, *L.cynopteri*, *L.canicola*, *L.beniamin*, *L.pyrogenes*, *L.australis* B, *L.schuffneri*, *L.sentoti*, *L.bangkinang*, *L.autumnalis* A, *L.djasiman*, *L.australis* A, *L.muenchen*, *L.pomona*, *L.grippotyphosa* *moscow* Y, and *Duyster*, *L.hebdomadis*, *L.medanensis*, *L.woiffi*, *L.bataviae*, *L.paidjan*, *L.seorang*, produced lipase in a smaller and greater degree.

J. Parnas a. coll.

~~LEPTOSPIRA BATAVIAE IN THE AUTHORS OWN  
INVESTIGATIONS.~~

154.

~~Zentralbl.Bakter., 1960, I. Orig., 180, 1-4.~~

The authors tested 4327 micromammalia and rodents onto leptospirosis. The tests have been performed by means of serological reactions, (agglutination and lysis) in bacteriological and histopathological experiments. The results gave besides positive serological reactions with other leptospira serotypes as well as different separated leptospira serotypes - positive reactions for 10 micromammalias - with *L.bataviae* in serum dilution from 1:80 to 1:1280. We noted positive agglutination reactions in *L.bataviae* from 1:80 to 1:320 in 13 rodents.

We isolated *L.bataviae* from *Microtus arvalis*, *Mus musculus* and *Erinaceus roumanicus* in 3 cases.

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Histopathological tests of 23 rodents onto leptospirosis gave negative results.

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J.Parnas et al.

STUDIES CONCERNING ENDEMIC LEPTOSPIROSIS IN HYDRO- 155.  
BIONTICS LIVING IN HYDROBIOCENOSIS.

Zentralbl.Bakteriologie, (in printing)

Within an endemic Leptospirosis-area, harbouring a high percentage of Leptospirosis-infected small mammals, a number of 189 water-born Hydrobiontics were examined. (Amphibiae, Mollusca, Insecta, Hirudinea). 1 specimen of Bombina bombina was found to show a positive serologic reaction (L.autumnalis), positive serologic reactions were found also in 3 specimen of Rana esculenta (L.australis B, L.mitisp et cetera). Efforts to isolate species of Leptospira were futile. The authors agree with the accepted opinion, that Hydrobiontics bear but little importance in the epizootiology and epidemiology of endemic Leptospirosis.

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J.Parnas et al.

LEPTOSPIRAE, AFFECTING THE COMMON HOUSE- MOUSE 156.  
(MUS MUSCULUS).

Zblt.Bakteriologie, (in printing)

1090 specimen of common house-mice (mus musculus) collected in endemic districts of Leptospirosis were examined by means of anatomic-pathologic, histopathologic, serologic,

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biologic and bacteriologic methods. The different methods of examination supplement each other, 53 common house-mice (4,86 %) showed a positive serologic reaction. The following serologic types were found to be prevalent: *L.grippotyphosa*, *L.sejroe*, *L.canicola*, followed by *L.australis* B, *L.saxkoebing*, *L.ictero-haemorrhagiae*, *L.mitis*, *L.pomona*, *L.australis* A, *L.autumnalis*, *L.bataviae*, *L.poi*, *L.hebdomadis*, *L.ballum*.

17 strains of *Leptospira* were isolated from common house-mice: *L.grippotyphosa* 12 times, *L.sejroe* 3 times, *L.bataviae* 1 time, *L.ictero-haemorrhagiae* 1 time.

The authors are pointing out the importance of controlling the transfer of Leptospirosis by common house-mice in regard to the epidemiology of Leptospirosis.

J.Sonecki, J.Farnas, A.Koślak

A CURIOUS CASE OF LEPTOSPIROSIS. (Pomona).

157.

Przegląd Lekarski

The authors have been the first to describe in Poland the leptospirosis pomona type in man. They found this disease in a bricklayer and that the man had been in contact with rats. The begin and the run of the disease showed the clinical picture and symptoms of leptospirosis pomona. The serological analyse led upon dynamical and often repeated blood investigation by the means of the saturated reaction, which affirmed the investigation results gained in clinical observations.

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A. Tuszkiewicz, F. Wysocka, W. Szewczykowski, Z. Bryc

A CLINICAL PICTURE OF SWAMP-FEVER IN THE  
DISTRICT OF LUBLIN - 1955-1957.

158.

Przegląd Epidemiologiczny, 1958, T.XII, p.15

This work leads on observations, performed in the hospital of Tomaszów Lubelski. We had 406 cases of swamp-fever: 353 in the time of an epidemical outbreak of the disease, 3 in 1956, and 50 in 1957.

The observed patients were almost exclusively peasants, 3/4 of them were men from 2 - 57 years old. Only on 50 % we could state the incubation period from 1 - 2 days, the average was 3,5 days. The symptomatology of the observed cases (1956-57), didn't much deviate of those we observed in 1955; they have been described by Tuszkiewicz and coll. in the Annales U.M.C.S., sectio D, 1958, T.XII, p.363. In 90 % of the cases the begin of disease was sudden, sometimes even violent.

Chief symptoms were: fever, strong muscle and head-aches, pinching pains of the conjuncta, face-redness, a slight edema of the lymphatic glands, liver increase with action damage and albuminuria. In the begin of the disease, the diagnostic for swamp-fever is not a difficult one, particularly for physicians, knowing all about the possibility of it, and that this disease often breaks out. We can say, that physicians didn't know about it, and took it for a, what we say, summer-grippe. That were just the researches of the Lublin Institute for Country Work and Hygiene in Lublin which stated a rather often outbreak of the disease in the Lublin district, and allowed to find the right definition.

We discussed about differential and diagnostic with other diseases, especially about typhoid fever, influenza, infective mononucleosa, liver and kidney diseases, acute rheumatic disease, trichinosis, and so on.

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W. Szewczykowski, M. Rycaj

LIVER FUNCTION TESTS IN 50 PATIENTS SUFFERING  
FROM SWAMP FEVER.

159.

Annales UMCS, 1958, Sectio D, Vol. XIII, p.383.

During the epidemic which occurred in the Lublin district in 1955, the following liver function tests were carried out in 50 patients suffering from swamp fever: 1) cadmium test, 2) thymol test, 3) bilirubin level in blood serum, 4) total protein level in blood serum, 5) albumin level in blood serum, 6) globulin level in blood serum, 7) cholesterol level in blood, and 8) alkaline phosphatase in blood.

In 38 patients one or more tests were positive. In 8 patients the laboratory findings pointed to a liver impairment of considerable degree (3 or 4 tests positive). There should be stressed a tendency to an increase of the level of proteins in blood serum, sometimes pronounced, produced by an increase of globulins followed by a reversal of the albumin-globulin ratio. In no case an increased alkaline phosphatase level was found. Bilirubin level in blood was in the majority of patients at the upper borderline of normal.

When assessing the results of authors' investigations, it should be born in mind that the examined material was selected and comprised patients in whom clinical examination suggested an impairment of the liver parenchyma.

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A.Tuszkiewicz, F.Wysocka, J.Zwierz, W.Szewczykowski,  
Z.Bryc, M.Pietraszkiewicz

SYMPTOMATOLOGY OF SWAMP FEVER IN THE LUBLIN 160.  
DISTRICT DURING THE 1955 EPIDEMIC.

Annales UMCS, 1958, Vol.XIII, Sectio D, p. 363.

The paper, based on the observation of 353 hospitalized cases of swamp fever, presents the clinical picture of the disease in the Lublin district in 1955.

The course of the disease was benign, without icterus, and the symptoms were not essentially different from those observed in Europe by the majority of authors. It should be noted that usually more seriously ill patients applied for hospitalization - there were probably numerous lighter or abortive cases which could not be noted by the authors.

The symptoms of the epidemic were as follows:

enlargement of lymphatic nodes	96	%
head-ache	89	%
conjunctival injection	89	%
sudden onset of disease	88	%
muscular pains	83	%
shivering	83	%
enlargement of liver	70	%
sweats	43	%
vomiting	33	%
exanthema	32	%
flushed face	21	%
stiffness of neck	20	%
enlargement of spleen	16	%
skin eruptions	7	%
diarrhoea	5,6%	

The first period of the disease with constant fever about 40°C usually lasted 5 or 6 days and finished with a lytic or more rarely critical fall of fever. A second wave of

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fever was observed in 53 per cent of cases. It occurred usually after one or two apyretic days, lasted 12 82 per cent of cases only one day and was lower than the first wave.

More serious organic lesions which can occur in the second period of leptospirosis were noted rarely. Marked liver damage with icterus was exceptional; in none of the patients a clearly developed picture of nephritis was seen. In the majority of cases there occurred a light and transient damage to the liver parenchyma manifested by positive results of liver function tests, and a light and transient damage of the kidneys. Equally transitory and little pronounced were meningeal symptoms, which were seen comparatively rarely. No patient presented clear symptoms of haemorrhagic diathesis. The white cell count was normal or slightly decreased in the majority of patients; distinct leucocytosis was observed exceptionally. In most cases blood sedimentation rate was moderately accelerated.

Of possible complications 10 cases of abortion were recorded. The convalescence period lasted from two to four weeks. In no case lasting organic damage was observed as a sequel of the disease. No fatal case was recorded.

Characteristic of the described epidemic were: generalized, discrete swelling of lymphatic nodes in nearly all patients, normal or even lowered white cell count and rare occurrence of skin eruptions.

The following clinical forms could be distinguished:

A. ANICTERIC FORMS

Pyretic form with hepato-renal syndrome	31	%
Pyretic form with liver impairment	24	%
Influenza-like form	14	%
Pyretic-meningeal form	14	%
Pyretic form with kidney impairment	9	%
Pure pyretic form	3	%
Abdominal form	2	%
B. BENIGN ICTERUS FORM	3	%

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A. Tuszkiewicz, F. Wysocka, W. Szewczykowski

EPIDEMIOLOGY AND SYMPTOMATOLOGY OF THE LEPTO- 161.  
 SPIROSIS THYPHOIC GRIPPE IN THE REGION OF LUBLIN.

Presse Medicale, 1959, V. 67, p.236.

This infection occurs most frequently during the time of hay-making, when peasants are wading in water upper-knees. It occurred rarer at other rural works as: corn-harvest, clover and flox collecting. Most of these cases were a possibility to infection. The habit of working bare-footed in fields, favorised this kind of contagion. The starting point of the disease is generally the skin, - often together with the oesophagus or the conjunctiva.

The symptomatology of leprospirosis in the region of Lublin has almost been described in several works, published by Tuszkiewicz and coll. in Annales of U.M.C.S. and in the "Revue for Epidemiology". In most of these cases the disease confines itself to the first febrile stage, withdrawing symptoms of liver or kidney damages. Those however didn't last and were not serious ones. No constant consequences occurred.

The second case (toxaemia), was abortive and showed low fever during 1-2 days. Most grave complications concerned the system of circulation, i.e., endocarditis gravis:

miocarditis gravis	6 cases
shock	4 "
endocarditis	1 "
embolia art. inquinal. cum gangraena extrem.inf.	1 "

Lung-complications occurred very seldom. The recovery lasted 1-2 weeks, during which time patients felt weak and debil. They suffered from joint-aches and sweat, and were not able to work.

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D. TULAREMIA.

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J. Parnas, T. Rozowski, F. Wysocka

MONOGRAPHY "TULAREMIA".

162.

P. Z. W. L., 1957, Warsaw

This monography contains the following chapters:

1. An outline of Investigation-History in Tularemia.
2. Geo-epidemiology in tularemia.
3. Epizootiology and ecology.
4. Epidemiology of tularemia in Poland.
5. An outline for immunology in tularemia.
6. Microbiological properties of the tularemia bacillus.
7. Pathogenesis of tularemia.
8. Pathological anatomy in tularemia.
9. Symptomatology of tularemia.
10. Clinical forms of tularemia.
11. Diagnosis of tularemia.
12. Differential diagnosis in tularemia.
13. Several kinds of tularemia diagnosis and their evaluation.
14. Teraphy in tularemia.
15. Profilactic and how to fight against tularemia.
16. Literature.

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J. Parnas

ABOUT THE NATURAL FOCALITY OF TULAREMIA.

163.

Lekarz Wojskowy, 1955, No.4, p.382-396.

In natural foci of tularemia in regard to the field-biotype (wood-field), the following animals form the infection centres:

1. Small rodents as: Apodemus agraris, Microtus arvalis, Micromys minutus.
2. Domestical animals, feeding on pasturage grounds,

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where *Apodemus agrarius* lives, i.e., horn cattle, horses, sheep, pigs.

3. Wild animals eating mice: owls, mousers, weasels and foxes.
4. Ticks and arthropodae, being animal parasites.

The author enumerates, according to Russian authors, natural tularemia centres in Z.S.S.R.

The chief-role play rodents and arthropodae; they are the very centres, reservoirs and transporters of tularemia. The greatest influence for the development and spread of tularemia exerces rodent's invasion, it causes, what we call, the mice-summer (Dehmel, Simm 1946).

The arthropodae are also a reservoir for tularemia bacillus, especially at the interepisodical period, they cause the expansion of tularemia.

The seasonly character of tularemia is in relation with the seasonly multiplication of rodents and arthropodae. (Skrodzki, 1954). The chief factor for the spread of tularemia bacillus in natural foci are small, infected rodents; they infected themselves by contact, cannibalism, and the arthropodae action. Water circulation in the soil, causes the tularemia circulation.

The turn point for investigations onto natural foci of tularemia in Poland was the outbreak of a tularemia epidemic in the district of Szczecin, 1952. In summer 1953, an expedition, under the leadership of J. Morzycki, performed ethiological complex investigations, as well as, zoological, entomological, epidemiological, microbiological and epizootological investigations. 3289 animals (rodents, insectivorous, carnivorous, and birds) have been tested, 7 strains of the bacillus have been isolated (Skrodzki). Other arthropodae (250 mosquitos, 1000 flies, 84 fleas and lice) have been tested; they didn't show infection. The scientists affirmed also rabbit tularemia in the tested region. (Rozowski, Skrodzki, 1952). People, domestic animals, rodents and arthropodae have been tested in the infected

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region. They showed following results:

test results: 1157 cows: 9,9 % questionable  
1,9 % positive in agglu-  
tination reaction,  
with tularemia  
antigene

130 horses, 357 pigs, 152 sheep, 2 goats and 20 cats showed  
negative results in the agglutination reaction.

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J.Parnas

TULAREMIA, A PROFESSIONAL COUNTRY DISEASE.

164.

Medycyna Pracy, 1955, No.1, p.53.

Analysing the materials about tularemia in Poland we gained the conviction that this disease is a typical rural professional one. Wysocka emphasizes in her work that 179 cases of tularemia having been retrospectively stated belonged to rural workers.

An important type of this epidemic is the so-called industrial type, directly related with hunting wild useful animals. Countrypeople are hunting them. The chief infection factors are rabbits. Country people are usually infected by contacts with the animals then by pulling of skins, by eating rabbits or by water being infected by materials of rabbit origin.

Other epidemic types are called threshing and existence types, where micromammalia are the chief factors. These animals hide themselves in haystacks and sheaves being in the fields. The sheaf contains usually living and dead mice, - and during the threshing, when people touch the sheaf, these very infected materials infect the skin on

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the hands and the face of people which work at the threshing. The dust of the threshing engine contains tularemia bacilli and is most dangerous for men. These professional epidemics find their outbreak just during the time when mice cannot find nourishment in the field, fill barns, larders, stores and even flats where people and domestic animals live. People do infect themselves at the grain-cleaning, hay distribution and by drinking water containing tularemia bacilli.

Water epidemics are caused by drinking infected well water, by bathing in infected reservoirs and at melioration works.

These transmitting epidemics happen because of field and forest work as well as water work, owing to the existence of several vectors, as mosquitos, ticks and others, especially in swampy regions.

E.Kamińska, K.Neyman, J.Parnas

DIAGNOSIS OF TULAREMIA BY THE HELP OF TULARIN. 165.

Polski Tygodnik Lekarski, 1956, XI, 41, p.3.

The authors describe the first tularemia cases among the population of the Poznań district, the epidemic broke out in winter and spring 1955. The source of the disease was a rabbit which had been caught in a field. The diagnosis was performed on the base of interviews and dermo-allergic reactions performed with tularine U. The kind of tularine U production has been worked out in the Antropozoonose Section of the State Institute of Rural Occupational Medicine and Rural Hygiene by J.Parnas and K.Łazuga. The authors used the invirulent *Pasteurella tularensis* strain, having been isolated from the Russian vaccine for people (Gajski and Elbier), which has been cultured in Roux

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bottles under 37° for 72 hours and then washed in a physiological salt solution. The suspension is 3 - 4 times washed in a physiological solution and centrifuged. This suspension, gained in this way, is exposed to ultrasound of 3750 Kc/sch power during 90 minutes under 25°C, afterwards the suspension is diluted as to 100 millions bactery corps density in 1 ml. (according to Brown's scala); at last 0,5 % phenol is added and the whole preparation is warmed during 1 hour in 60°C.

The tularin showed to be a diagnostic allergene, being sensible, invirulent - acting early and in a mild way.

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E. ORNITHOSIS, Q-FEVER, TUBERCULOSIS,  
AND OTHER ANTHROPOZOOSES.

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J. Parnas, W. Szmuness (collaboration of H. Cyberman)

FURTHER INVESTIGATION RESULTS ON ORNITHOSIS. 166.

Przeglađ Epidemiologiczny, 1961, 4.

The authors performed complex investigations of ornithosis on 1527 workers, employed at egg and fowl stores. 4,64 % responded positively to the complement fixation test. Hospital materials (atypical pneumonia) showed 8,66 % positive reactions, and some patients showed a symptomatic form of ornithosis. Among 418 pigeons, 4,3 % reacted positively. The authors tested sparrows, crows, hens, ducks and geese, but didn't find positive results.

As to positive results of the complement fixation test together with the ornithosis antigen with a titer of 1 : 8, 1:16, the authors think, that they are specific and should be taken under consideration in epidemic investigations. The complement fixation test is much more sensitive, than the interdermal allergic one, in cases of ornithosis.

The infection degree among workers oscillates in the different institutions and depends on the sanitary, hygienic and technological conditions of the enterprise, as well as on the epizootological situation of the area, from which the merchandise came (butcher birds).

The highest degree for infection had been found among workers who worked at the manufacturing and in the feather stores, or those who worked on fowl farms and in slaughter-houses, as well as at the fatten of fowl.

The authors observed that the hygienic conditions in the different institutions do favorise the possibilities for infections (high strain, of dust in the air, lack of mechanical ventilation and separation for the several kinds of work too, which do neglect the personal and the work hygiene).

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The investigations results showed that ornithosis is a kind of disease which requires a special safety system for workers' health. They should be under a special care, and one should devote more time for the ornithosis problem.

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J.Parnas, W.Szmuness, J.Ujda

A CASE POINTING ON ORNITHOSIS INFECTION.

167.

Polski Tygodnik Lekarski, (in impr.)

The authors show the clinical picture, laboratory tests and epidemiological enquiries of this case, the first which happened in Poland. The patient was a student, 29 years old. Clinical data pointed on ornithosis. The patient feld in generally well, he didn't suffer of breathlessness, the breath for a minute showed to be regular, the quantity of blood corpuscles was good, we couldn't observe any physical symptoms of weakness nor pleurithis. The application of general antibiotics didn't show a distinct improvement.

The serological test gave a positive Complement Fixation Test, with the titer: 1 : 128; the interdermal allergy test was negative. We performed serological and epidemic tests of fowl, in the patients family, but couldn't find the source of the disease. It is possible, that the infection was due to pigeons. They showed a high percentage of infection with the ornithosis virus.

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J.Parnas, W.Szmuness, K.Łazuga

ORNITHOSIS (BIRD DISEASE) - A NEW OCCUPATIONAL 168.  
DISEASE IN BREEDING.

Medycyna Pracy, 1960, XI, 6., 441.

The authors have described the basic data concerning epidemiology, occupational hazard, clinic and prevention of a new occupational disease of the breeding and manufacture labourers - ornithosis.

The paper contains the results of examination carried out among 723 workers employed in 6 establishments of poultry and egg manufacture as well as the results of determinations of complement fixation tests in the blood of birds. The examinations made in men consisted of the determination of complement fixation test with the antigens of ornithosis in the blood and skin allergic test with ornithosine. Among 723 persons the positive complement fixation test occurred in 37 cases.

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Z.Hencner, S.Buczyńska-HencnerowaSTUDIES ON THE OCCURENCE OF POSITIVE SEROLOGICAL 169.  
TESTS FOR Q-FEVER.

Annales UMCS, 1959, Vol. XIV, Sect.D, p.173.

Human and animal sera were serologically examined for Q fever by the complement fixation test, performed according to the method of Wojciechowski and Babudieri. Henzerling antigen, produced by the Cracow Biological Laboratory, and Nine Mile antigen produced by the Biological Laboratory in Bratislava and Lederle laboratories, were used.

The following sera were serologically examined:  
a) 2039 blood samples, collected from human beings. This number included 562 samples collected from farmers, 157 samples from slaughter-house employees, 110 samples from

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patients hospitalized in the clinics of the Medical Academy, and 1250 samples sent for serological examinations (the Wasserman test). In the complement fixation test 7 sera reacted positively at the titre of 1:16 with Henzerling antigen and 3 sera reacted positively at the same titre with Nine Mile antigen. At the titre of 1:32 one serum reacted positively with Henzerling antigen and 2 sera reacted positively with Nine Mile antigen. The repeated examination gave positive results.

b) 1680 blood samples collected from domestic animals. This number included 478 samples collected from slaughtered animals, 168 samples from sheep, 473 from calves, 372 samples from cattle bred in the Lublin province, 189 samples from cattle bred in the Kielce province. In the complement fixation test, 8 sera reacted positively at the titre of 1:16 with Henzerling antigen and 8 sera reacted positively at the same titre with Nine Mile antigen. At the titre of 1:32 sera reacted positively with Henzerling antigen and 8 sera reacted positively with Nine Mile antigen. No antibodies were found in the samples collected from calves and sheep.

292 blood samples collected from 10 different species of small mammals. In the complement fixation test, 4 sera reacted positively at the titre of 1:20 with Henzerling and Nine Mile antigen. At the titre of 1:40, 2 sera reacted positively with Henzerling antigen and one serum reacted positively with Nine Mile antigen.

The results compared with those obtained in 1952 show an increased percentage of men and animals reacting positively in the complement fixation test, performed with *R. burnetii* antigen.

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J.Parnas, C.Mardarowicz

ANTHRAX IN THE COUNTRY, AND ZOOTECHNICAL INDUSTRY. 170

Wiadomości Lekarskie, 1956, No.13, p.605-610.

The authors discussed the following problems:

The ethiology of the bacillus, its reservoir-places, epidemiology, pathogenesis, clinical and laboratory diagnosis.

The chief causes of anthrax spread among people are:

1. Direct contact with animals, being infected, or with infected animal raw products.
2. Illegal slaughter, taking to pieces and eating infected meat.
3. Burrying infected animal corpses not taking care of sanitary-hygienic, veterinary prescriptions.
4. Not taking under consideration prescriptions for preparation, storing and outworking raw products in meat industry.
5. Sale and purchase in market places by private persons, of coats, hair, hog's hair, skins and other products being of animal origine.
6. Lack of strict contact and collaboration between medical and veterinary service, in the competence with profilactical activity in order to fight against anthrax.
7. The Medicine and Veterinary Service does not care about teaching people as to infection possibilities.

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J. Kudejko, K. Łazuga, J. Parnas, C. Ryll-Nardzewski

MIDDLEBROOK-DUBOS REACTION IN TUBERCULOSIS OF 171.  
THE SKIN.

Przegląd Dermatologii i Wenerologii, 1956, 6, p.537.

The authors have performed Middlebrook-Dubos reaction on 113 patients: 95 patients with tuberculosis of the skin and 18 cases with lupus erythematosus. The investigations were carried out according to the method given by Sohier with modifications of Łazuga and Parnas. In about 80 % cases of active tuberculosis of the skin and in 10 cases out of 18 of lupus erythematosus the reaction was positive. In the majority of cases (72 out of 79) low titres were obtained (1:8 - 1:32). The highest titres were found in a case of papillomatous tuberculosis (1:128), in ulcerative tuberculosis luposa, in cases complicated by elephantiasis, in lymph adenitis and epididymitis tuberculosa, in colliquative tuberculosis with co-existing pulmonary tuberculosis and in one case of lupus erythematosus (1:64). Negative hemagglutination reaction was obtained in cases of active tuberculosis of the skin in 21 % and it happened comparatively often in patients with advanced stage of the disease. The authors are of the opinion that hemagglutination reaction together with other tests deserve a more frequent employment in tuberculosis of the skin. The results of the whole are in conformity with the reports of other investigations.

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J. Parnas, K. Łazuga

SOME OBSERVATIONS ON TUBERCULOSIS OF ANIMAL  
ORIGIN AMONG RURAL POPULATION.

172.

Annales UMCS, 1953, Vol. VII, Sect.D, p.101.

In the initial stage of the authors research on human tuberculosis of animal origin as observed in the rural population, various materials obtained from agricultural workers suffering from infected animals were examined. The isolated bacilli were identified by means of the following tests: a) microscopic examination, b) examination of cultures according to Jensen, c) determination of streptomycin resistance, d) examination of cultures on Wagener's medium, e) haemagglutination reaction with sera of inoculated rabbits, g) post mortem examination of rabbits and guinea-pigs according to Jensen.

Following results were obtained:

- 1) In 68 samples of sputum from tbc patients the human variety of bacilli was found.
- 2) In 85 samples of cerebrospinal fluid the human variety was present.
- 3) The same result was obtained from the examination of pieces of skin and samples of pus from patients with tbc of skin.
- 4) From the examination of 23 samples of pus in cases of bone and joints tbc.
- 5) In 85 samples of lymph glands from infected cows no bacilli of the human variety were found.
- 6) In 110 samples of human milk tbc bacilli were found.
- 7) In 167 samples of cow's milk, butter and cheese bacilli of the bovine variety and saprophytic acid-resistant bacilli were isolated.
- 8) In one sample obtained from an infected dog the presence of the human variety was demonstrated.

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9) In one sample of exudate from lymph glands in the neck of a child the bovine variety was obtained.

10) In the authors investigations the bovine strain of bacilli proved streptomycin resistant in 42,3 %.

It is thus evident that in human material the human variety of bacilli was found in almost all cases, whereas the animal material contained the corresponding animal variety.

This preliminary report does not yet allow to conclude that the bovine variety of Kochs bacillus plays in this country only a limited part in the spreading of human tuberculosis (children). Investigations in that line should be continued on a larger scale; there should be also undertaken experiments aiming at a transformation of the animal variety into the human one, which work is planned by the authors.

J.Parnas, T.Mierzejewski, A.Feltynowski, K.Łazuga

COMPARATIVE STUDIES ON PROPERTIES OF BACTERIA: 173  
 PASTEURELLA TULAREMIAE, PASTEURELLA MULTOCIDA,  
 PASTEURELLA RODENTIUM AND BRUCELLA BRUCEI.

Annales UMCS, 1955, Sect.D, Vol. X, p. 207.

Studies of the form and general structure of Brucella brucei, Pasteurella tularemiae, Pasteurella multocida and Pasteurella rodentium conducted by the use of an electron microscope proved that there is a separateness of forms of Brucella brucei, Pasteurella tularemiae and Pasteurella multocida on the one hand and on the other that of Pasteurella rodentium. Pasteurella tularemiae exhibits the presence of delicate envelops, demonstrated on the enclosed photographs. No agglutination of Brucella

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brucei with Pasteurella tularemiae has been observed; in our previous tests with animal and human sera an agglutination reaction with Pasteurella tularemiae has been noted and it has been caused by serum containing agglutinins for Brucella brucei. However, the cross agglutination test with brucella serum and tularemia antigen has not been noticed, a fact that should be stressed. This test ought to be recommended in cases of coagglutination of Brucella brucei and Pasteurella tularemiae. In the course of experiments it has been noticed that the opsonocytophagic index of blood of rabbits infected with Brucella has been positive with Brucella brucei and at the same time mildly positive, or plus minus with Pasteurella tularemiae. In this respect the specific opsonocytophagic reaction is also positive although in a scale considerably milder with Pasteurella tularemiae, that may be an indication of an antigenic relation with Brucella brucei. In the present experiment as in the tests previously performed in no case parallergy has been observed between brucellin and tularin. In individuals infected with Brucella no positive skin-allergic test with tularin has been seen. The amino-acid set of the antigenic protein is in all four kinds of bacteria similar. However, the carbohydrate set indicates a similarity of Pasteurella tularemiae to Pasteurella multocida. There is no similarity of Brucella brucei to Pasteurella rodentium.

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J. Parnas

CAT SCRATCH DISEASE.

174.

Wiadomości lekarskie, 1957, 1, p.60.

The author lifts up the following problems:

1. The infection and the epidemiology of the disease,

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2. The pathogenesis and the pathological anatomy of the disease.
3. The clinical picture.

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J.Parnas, T.Dąbrowski, S.Lorkiewicz,  
S.Stępkowski, T.Mierzejewski

TEST OF CORYNEBACTERII, EMPHASIZING CORYNEBACTERIUM 175.  
EQUI.

Annales, UMCS, 1952, Vol. VIII, Sect. DD, p. 209.

This publication is the result of three years lasting investigations about Corynebacterium of animal origin. We performed bacteriologic, serologic, immunochemical, epizootologic tests for this purpose. The first part of this work gives a synthesis of world literature in regard to animal corynebacteria as: *C.pyogenes*, *C.equi*, *C.renale*, *C.pseudo-tuberculosis*, *C.enzymicum*, *C.lipolyticum*, *C.hoagii*, and *C.murium*.

The authors tried to verify the literary descriptions about the individual corynebacterium properties in order to dilate their experiences in this sphere. They considered the activity of antibiotics (streptomycin, penicillin, chloromycetin, aureomycin, mycolein, hyphomycin).

They analysed the vaccines' activity against pyobacillosis of foals, and tested the antigenic structure of 20 strains of *C.equi*, taken from several Polish regions. They stated that those strains possess identical specific antigens being as for types and groups specific, which equals the entire antigenic-homogeneity of these strains. The complement fixation test didn't show common antigens among the following corynebacteria: *C.equi*, *C.pyogenes*, *C.bovis*, *C.suis*, *C.renale*, *C.lipolyticum*, *C.diphtheriae*, and *C.enzymicum*. They could state the equality in *C.equi* and *C.hoagii*. The investigations upon the antigen-properties

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of six types C. pyogenes: bovis, ovis, suis, equi, leporis and humanus is the result of antigenic un conformity in this corynebacterium group.

The collected investigation materials may allow us to fight against the pyobacillosis in foals - and to pay attention to the suitability of using streptomycin for infected farrows, lambs, calves and foals.

J.Parnas, J.Szczygielski, W.Zwolski, K.Burdzy

SUSCEPTIBILITY OF MICROTUS ARVALIS AND SOME  
ARTHROPODA ON INFECTION WITH THE VIRUS OF  
INFLUENZA.

176.

Wiadomości Parazytologiczne, 1960, T.VI, No.6, p.529.

The experiment I and II were conducted on with 2 white mice, 5 Microtus arvalis, 2 Gamasides, 91 Hoplopleura acanthopus and 200 Polypax spinulosa.

For the experiments the influenza virus PR8 was used.

As regards Microtus arvalis it was proved that it is susceptible to the virus of influenza PR8. The susceptibility of Microtus arvalis proved to be not lower than that of white mice. The virus of influenza PR8 was isolated from the lungs of all the examined white mice and microtus arvalis. In not a single case, however, the virus could be isolated from the Gamasides, neither from the Hoplopleura acanthopus nor from the Polypax spinulosa in spite of the fact that undoubtedly in all the examined mice the viral infection was in the form of virusemia.

This is an indication that the Gamasides, Hoplopleura acanthopus and Polypax spinulosa could not be infected with

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virus of influenza PR8 (or that the virus was destroyed after the penetration to the organism of the Arthropoda with the blood of the host).

The experiment should be repeated on a larger material and the virusaemia of mice should be submitted to control. It appears that *Microtus arvalis* is a suitable animal for experimental infection with the virus of influenza.

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F. RURAL PARASITOLOGY.

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F.Wysocka, J.Umiński

INVESTIGATIONS ABOUT THE COMPLEMENT FIXATION  
TEST WITH TOXOPLASMA ANTIGEN.  
TOXOPLASMA AND SARCOSPORIDIA.

177.

Medycyna Doświadcz. i Mikrob., 1955, 4, p.393.

This work was centred on the finding for the definition about the particularity of the complement fixation test with toxoplasma antigen, in case of domestic animals sarcosporidiosis infections. For the complement fixation test we used the following antigen: chorio-allantoic membranes of chick embryos infected with RH strain, according to Mac Donald's method. A negative antigen has been prepared out of uninfected chorio-allantoic membranes of chick embryos. We used the serum of infected rabbit as control serum. We tested also the serum of 346 pigs, 204 cows and 23 sheep.

Sarcosporidiosis in pigs has been carried out on a base of microscopical diaphragm tests, cows and sheep have been tested; we didn't take account of sarcosporidiosis infections. Among the pigs we found 18 animals with "sarcocystes Miescheriana"; they all showed a negative complement fixation. Six pigs not infected with sarcosporidiosis showed positive results.

Among 63 cows tested for sarcosporidiosis with course on "sarcocystes Blanchardii", 36 cows showed a positive complement fixation test (8,3 %) among 63 animals. For serums derived from cows not being infected with sarcosporidiosis, the complement fixation test was positive in 9 %.

Among 23 sheep, 7 animals showed sarcosporidiosis. In a group of 16 sheep the complement fixation test was only in one case positive.

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J. Umiński

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EVALUATION FOR DIFFERENT TOXOPLASMOSIS ANTIGENES 178.  
USED IN THE COMPLEMENT FIXATION TEST.

Wiad. Parazyt., 1956, Suppl./47/, p.5.

We used in our researches an antigen prepared from chorio-allantoic membrane antigens of hen germs, corresponding with Mac Donald's method with insignificant modifications of the antigen which had been taken out of mice peritoneal exudates, and guinea-pigs. This antigen has been frozen and smashed by ultrasonics, and an antigen made out from white mice exudates and treated with ACTH.

The purpose of our work was to be sure about the dependence of the Complement Fixation Test from the value of the used antigen.

## Reviews:

1. Value of the antigen in dependence of the titer and the restrain degree of hemolysis (by its titration),
2. The value of the antigen in dependence from the titer and the restrain degree of hemolysis, which can be read out of serums of experimental rabbits, having been infected by toxoplasmosis, and on unknown human serums.
3. The permanence of antigens.

Frozen oviform antigens didn't differ of those having been smashed by ultrasonics. The restrain degree for hemolysis was somewhere slighter as in the frozen exudate antigens, unless the titer was similar. The exudate antigen was a bit stronger. Antigens of mice exudates, which got ACTH and have a slower titer, gave us the strongest restrain for hemolysis.

Among 12 investigations made by the Complement Fixation Test, together with a serum of the same rabbit, and two or three different antigens, we obtained results only for

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one case. As for the rest - the differences concerned the highness of the titer of restrain degree in hemolisis, or for two elements in common. The comparison between the frozen oviform antigen and the frozen exudate antigen got our from exudates of mice which have been treated with ACTH and smashed by ultrasonics, showed a higher titer and a stronger restrain of hemolisis, by using the smashed antigen.

The tested antigens have been sampled and then put into the refrigerator (2/+ 02°C). We used merchiolate or phenol for the conservation.

The oviform antigen fell down as to the half of its start value, in the interval of 2 weeks - 2 months. The smashed antigen (oviform) didn't retain any antigen values after these two months. Merthiolat showed to be better for conservation. A certain point of view on the antigen's value, compared although not so precisely - may give an assemble of positive results, gained after quantity determination of testing different antigenes. The obtained assemblies point on a higher percentage for positive results, by the use of oviform antigens (10 %) as for the exudate antigens (3%).

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F. Wysocka, A. Bartoszewski, J. Umiński

TOXOPLASMOSIS IN OBSTETRIC MATERIAL.  
(District Lublin).

179.

Wiadomości Parazyt., 1956, 5, Suppl. /39/.

We tested 114 women whose clinical picture showed suspicion for toxoplasmosis. In the first group of 26 women there were some who gave birth to a dead foetus,

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or a living one who died after one week, or to those with developmental defects. In the second group there were 32 women who aborted living or dead foeti with development defects, and who died after a week. In the third group we observed 8 women after abortus. In the first group were pregnant (48) and not pregnant women suspected for toxoplasmosis. Among them, we found 9 women with active toxoplasmosis which confirmed the complement fixation test; other nine (9) had doubtful results.

All the cases had been tested for lues and serological nonconformity of the Rh factor. A separate work-division were ambulatory investigations of pregnant women in masses, as to toxoplasmosis and pregnancy development, as well as for delivery. We investigated 105 pregnant women, by the complement fixation test, by toxoplasmosis antigen, 7 of them showed positive reactions, with the titer 1:4 - 1:10.

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F.Wysocka, D.Czarkowska, M.Swatek-Pucek

THE INFLUENCE OF ACTH IN EXPERIMENTAL TOXOPLASMA 180.  
GONDII INFECTION ON WHITE MICE.

Wiadomości Parazytologiczne, 1956, 5, Suppl., 41.

Our experiences confirmed that:

1. The influence of ACTH on the increase of the degree in Toxoplasma gondii, treated with or without ACTH.
2. The picture of leucocytes in white mice with toxoplasma gondii infections, treated with or without ACT.
3. Histopathological changes in the organs of animals which have been infected with Toxoplasma gondii, being treated with or without ACTH.

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We used 35 mice for this investigation. 18 of them were infected and subjected to ACTH influence. 12 mice were only infected and only 3 were treated with ACTH.

The whole dose of this drug - 0,064 mg. has been used for the previous investigations. We elevated the dose to 0,14 mg. which gave the following results:

- Ad 1. Likely to the previous investigations we could observe a higher increase of Toxoplasma gondii in the organs of white mice, thanks the influence of ACTH especially in peritoneal exudates, infected by Toxoplasma gondii. We didn't observe tangible differences for Toxoplasma gondii multiplications which depended on the ACTH dose (0,064 mg. given in the previous series, and the 0,14 mg. in the present ones).
- Ad 2. We didn't observe changes which were remarkable between the leucocyte picture in mice infected by Toxoplasma gondii treated or not with ACTH (22 mice).
- Ad 3. We didn't remark tangible differences between infected mice treated with ACTH (232) and not treated, in regard to the leucocyte picture.
- Ad 4. Between prepares made out of infected mice and treated with ACTH and the infected and not treated we couldn't find remarkable differences in the tele-reaction. So, we can't confirm a distinct correlation between the degree of multiplication of Toxoplasma gondii which generally takes place after the ACTH activity and the cellular reaction. But we should pay attention to the great stasis in the vascular capillary, often occurring in infections of Toxoplasma gondii; it seems that after the ACTH treatment, a decrease can be observed.

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F. Wysocka, A. Dobrzańska, J. Umiński

TOXOPLASMOSIS IN CHILDREN WITH DEVELOPMENT  
 DEFECTS IN THE LUBLIN DISTRICT.

181.

Wiadom. Parazyt., 1956 (37).

We tested 140 children with development defects on congenital toxoplasmosis. Depending on the remarked clinical picture we divided them into groups:

1. neglected mental development with lack of physical defects	- 34
2. physical and mental development defects	- 59
3. physical development defects, but not mental disorder	- 33

We found 48 development defects of the cranial; bullus oculi defects 9, other organical defects 22; and acute fever states without etiological clarification.

Diagnostical test for children led us to the complement fixation test repreated periodically several times, in a serie of cases. We tested complimentary mothers of children being suspected of toxoplasmosis.

67 mothers and 7 fathers were tested. As the test-action for mothers did not came to end, the quantity of diagnose of cases with connatal, active children toxoplasmosis could not be definitied. These unfinished tests gave a positive result as to toxoplasmosis in children.

Group I	3 children
Group II	13 "
Group III	2 "

We found moreover uncertain results: in group I - one child, in group II - five children, in group III - one child.

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A. Dobrzańska, J. Umiński, L. Pruchniak (technical help)

THE INJURIOUS INFLUENCE OF LAMBLIA INTESTINALIS 182.  
ON CHILDREN HEALTH.

Pediatria Polska, 1957, v.7, p.797.

We tested 714 children being in the Pediatric-Clinic of the Medicine Academy in Lublin. They suffered from digestive diseases. Among 385 children - 25 suffered from the Lamblia intestinalis; among children who did not show digestive diseases we found 17 cases. The most frequent infection with Lamblia intestinalis occurs generally among country-children.

In 24 children the chief symptoms were stomach and intestinal indispositions. We confirmed the shape of lamblia intestinalis acuta in 10 children; two children showed beside this disease Shigella bacilli in the stool.

11 cases of Lamblia intestinalis had a protracted catharral character in stomach and intestins. Three of the children suffered from indeterminated stomach indispositions, i.e. diarrhoe, and spastic obstruction. We observed one case which simulated a duodenal ulcer disease.

K. Ulewicz, F. Wysocka

INVESTIGATIONS UPON THE FLORA AND FAUNA OF 183.  
INTESTINAL BIOCENOSA, FOR BABIES AND CHILD-  
REN BELOW SCHOOL-AGE.

Przegląd Epidemiologiczny, 1957, V.3, p.287.

In order to test the infection degree of nursery children and those below school-age and to gain data of eventual relations with intestinal flora and fauna

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biocenose, we performed clinical, microbiological and parasitological tests in 306 persons. We had to do with 246 children and 60 grown-up people. Nursery children were from 5 months - 3 years old, and children from 3 - 7 years old. We had women from 17 - 54 years; the most of them had an age from 21 - 35 years.

Among children we found 48,1 % parasites and among grown-up people 46,1 %, in 54 %. The chief place among parasites held Entamoeba invasion, then Enterobius, Trichuris trich., and some unknown invasions.

The secretion showed in 5,2 % of cases. Ent. coli scions: 0111, B4,005, B5 and 026 B6; beside that we found the bacillus paraceli, Proteus and Klebsiella Friedländeri, a bacillus variation of the colon with an antigen integumentum, being isolated first of all from children and only one case in a grown-up person.

Among the tested material we did not observe the Salmonelles or Shigelles carrier-state.

F.Wysocka, A.Bartoszewski, J.Umiński, W.Zbroja

TOXOPLASMOSIS CARRIED OUT OF MATERIALS AT THE  
GYNOCOLOGICAL-OBSTETRIC CLINIC OF THE MEDICAL  
ACADEMY IN LUBLIN.

184.

Ginekologia Polska, 1957, 2, p.231.

We presented investigation results about 93 women being suspected for toxoplasmosis. Parallel investigations were made for toxoplasmosis, incompatibility of serological Rh factor and lues.

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We divided the tested material into 4 groups:

1. Women which gave birth (correct time) to a dead foetus or to living ones which died after a week, or to foeti with development defects.
2. Women who gave too early birth to dead foeti or living ones who died after a week, or to foeti with developmental defects especially hydrocephalus.
3. Women coming to the Clinic because of abortus.
4. Pregnant and not pregnant women being suspected for toxoplasmosis and whose past pregnancies evoked suspicion of this disease.

Blood tests performed on this purpose were made by the complement fixation test using a toxoplasmosis antigen, prepared out of chorio-allantoic membranes of chick embryos, having been infected with the Rh strain of Toxoplasma gondii. We repeated the tests at every case, and even in positive results. Our accepted titer was 1:5 for positive results, and  $1:4 \pm 1:5$  for higher and doubtful ones.

Eight (8) sure and seven (7) doubtful cases of toxoplasmosis, five (5) cases of incompatibility with the Rh factor and four (4) cases with a positive Wasserman reaction, have been diagnosed.

The number of toxoplasmosis cases in comparison with the number of positive Rh factor reaction cases, and those showing nonconformity with the Rh factor, proved the equivalent of toxoplasmosis in pregnancy-pathology in the tested material.

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FOR OFFICIAL USE ONLYF. Wysocka, J. Umiński, M. Margańska, S. Toś-Luty  
Technical help - L. PruchniakINVESTIGATIONS FOR THE SPREAD DEGREE OF  
INTESTINAL PARASITES AMONG COUNTRY-PEOPLE.

185.

Annales, UMCS, 1957, Vol. XII, p. 2/21/

During the years 1955-56 we investigated four arroundis-  
ments of our district, in order to note the degree of  
parasite invasion among country people. The outtyped  
environments differed in soil, though they showed similar  
backwardness as for hygiene problems and every kind of  
sanitary conditions. The investigation character was  
a focal one.

We tested about 2203 persons, one to three times. The  
degree of parasite invasion was rather high with an ave-  
rage of 71,6 %. The spread of *Trichuris trich.* is really  
eminent and higher as for *Enterobius verm.* The *Ascaris*  
*lumbr.* invasion takes the third place and the *Lambliasis*  
the fourth.

The curve for *Trichuris trich.* grows from the begin of  
the fourth year of age, and shows as to 68,4 %. As for  
grown-up people we found 62,5 %. The percentage of infec-  
ted grown up people living in Lublin-town is a much smaller  
one, i.e., 16,3 %. Women are usually infected by *Tricho-*  
*cephalus* which is clearly seen after the thirteenth year  
of age and later on.

As for men we found the oftenest *Enterobiasis*. The exten-  
tion curve in invasion increases after the seventh year of  
age and finds its culmination during the ninth year of age.

*Ascaridosis* is most often found in women. The highest  
value is to be seen during the 6th year (50 %), in men  
from 6 - 36,6 %. The most universal parasite is *Ent.coli*  
which doesn't belong to the pathogenic group (average 30%).

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M. Stroczyńska

PRELIMINARY TESTS FOR THE USEFULNESS OF NELSON  
MEDIUM LES, AND THE MEDIUM OF MRS. PAWŁOWA, FOR  
THE ENT.COLI CULTURE.

186.

Wiad.Parazyt., 1958, 3, p.198.

The aim for preliminary researches was to get a wide knowledge about the principal values of individual kinds for media for Ent.coli cultures. These media have been used with and without a supplement of peniciline.

We performed 160 inoculations (from 142 persons) with 13,6 % of positive inoculations. We took LES and media Pawłowa, for our researches.

The practical value for the Ent.coli culture gave us the medium of Mrs. Pawłowa. We gained the highest positive culture percentage (30,8 %). The multiplication of Entamoels was very strong, it kept them living, the process of development was much longer than by using other medias. It seems, that the peniciline supplement is better for lower stiffings (250-500 units/1 ml.).

The LES medium holds an average position together with a peniciline supplement; it shows to be of equal value as the Pawłowa medium.

Larger stiffings for peniciline are more advantageous; this was proved by numerous positive results in stiffing 1000-2000 units/1 ml., than in 250-500 units/1 ml. - 18,7%.

Nelson medium didn't show good conditions for Ent.coli development. All percentages in positive cultures and the most numerous multiplications of Entamoels can be reached through the exclusive presence of Ent.coli in the test matter. Less satisfactory results were reached through material cultures of other parasites; the lowest

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percentage in positive cultures was reached through a syn-chronical appearance of Ent.coli together with Trichuris trich.

The quantity of positive results rises parallel to the number of cysts in the cultured material. We are hoping to gain a positive result if the preparate contains more than 6 cysts.

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A.Dobrzańska, T.Mierzejewski, J.Umiński

ELECTROPHORETIC TESTS FOR ALBUMEN IN THE BLOOD 187.  
SERUM IN THE TOXOPLASMA INFECTION.

Wiadomości Parazytol., 1958, 5/6, p.104.

The albumens of positive serum in the complement fixation test with the toxoplasma antigen have been tested by electrophoretical method. The albumen of blood serum has been tested quantitatively and qualitatively in a group of 11 persons. The result has been carried out on a base of clinical symptoms; the positive complement fixation test, the Frenkl's skin test, the positive Sabin-Feldman dye test.

Among the investigated group were five children with congenital toxoplasmosis, and six mothers; other acute or diffusely infective diseases were excluded. The division of albumen in the blood serum was carried out on blotting paper, after the electrophoretical method. 0,2 ml. of serum have been dotted upon those stripes (Whatman No.1 - 4 x 32 cm.). A veronal buffer of pH - 8,5, n - 0,9 voltage - 150 , ampers - 0,4 cm. A has been used. The partition lasted 16 hours, the temperature took out 18 - 20° C. The preparate has been coloured with bromophonal bluish.

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After rinsing the fraction percents in the proteinogram, the percents have been denoted on Leitzner's Photocolorimeter, by the use of the filter D. In proteinograms of mice infected with toxoplasma we could observe a fall of albumen percents and an increase of the total globuline amount which were distinctly to be seen in the fraction  $\beta$  and  $\gamma$  globulines.

In order to verify similar changements of the proteinogram carried out of animals blood serum, we tested six experimentally with toxoplasma infected rabbits. Beside the increase of globuline fraction in rabbits,  $\beta$ , we could observe the increase of a globuline fraction  $\gamma$ . Equally in men, as well as in infected rabbits the proportion of albumen to globuline was inverted.

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A. Bartoszewski, S. Tos-Luty, J. Umiński, R. Sikorski

TOXOPLASMOSIS OUT OF THE MATERIAL GIVEN FROM THE 188.  
GYNECOLOGY AND OBSTETRIC CLINIC OF THE MEDICAL  
ACADEMY IN LUBLIN.

Wiad. Parazyt., 1958, T. V/VI, p. 423.

We investigated 103 women, being in child-birth. After it they were divided into two groups. In one of them there were women in child-birth whose environment and interviews about previous pregnancies suggested the idea of toxoplasmosis. In the second group there were patients interviewed about their environment and previous pregnancies who didn't suggest the possibility of toxoplasmosis, but who were tested because of Frenkl's interdermal reaction, as well as for the conformity of allergical results by the Complement Fixation Test, and the staining test Sabin-Feld.

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All these women had been tested by the Complement Fixation Test for one time. We confirmed the titer 1:30 for the Complement Fixation Test in one of the women; 1:10 in one woman; 1:4 in four women; in one of the women the serum showed to be positive in the Complement Fixation Test, and in the stain test = 1:50 it showed a positive allergy reaction +++.

Cases showing a positive Complement Fixation Test had always positive results in the two remaining investigations. As for the positive interdermal reaction we often couldn't affirm simultaneous results for the Complement Fixation Test and the stain test.

J.Umiński, S.Tos-Luty

FURTHER INVESTIGATIONS FOR OBTAINING TOXOPLASMOSIS 189.  
IMMUNITY SERUM FROM RABBITS.

Wiadomości Parazytologiczne, 1958, 5-6, p.415.

We used 23 rabbits for these investigations, 21 of them showed negative complement fixation test together with a toxoplasmosis antigen; two rabbits were naturally infected. We immunized the animals with peritoneum exudate of mice which had been dried for 24 hours in the incubator, at a temperature of 37° C, with fresh liver suspension, feeked peritoneum exudate, resting for 24 hours in room temperature, and inactivated peritoneum exudate resting for 30 - 60 minutes in a temperature of 56° C (dose 0,4 ml. in the solution 1-10-1-100). They have been infected orally and in peritonitic, hypodermic and interdermal way. For the inquire of the titer we used the complement fixation test together with an exudative antigen and an ovi-form antigen.

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Nine (9) rabbits received a dried peritoneum exudate in a solution of 1:10, in doses of 0,2 - 1; 5 ml. orally administered and on hypodermical way, and did not develop antibodies. After a killing dose (0,2 ml.) of fresh liver suspension in a solution of 1:100 given interdermally, eight rabbits died. There was only one rabbit which survived because of its natural immunity. Titer of the complement fixation test before the experimental infection 1 - 8 ++ after having endured a new infection by dried and then by fresh liver suspension, the titer grew up to 1:128.

A fresh liver suspension, as we previously wrote, has been given 1 - 6 times, is not suitable to immunization because it provoked the exitus of animals before they could produce antibodies. Both of the rabbits died. There was only one to survive because of its natural immunity (titer grew from 1:16 before the experiment to 1:64 after it.).

The best method to get immunitated and antitoxoplasmosis serums with a high titer showed often to be (3-10 times in intervals of 3-4 days) doses of mice peritoneum exudate, being infected by inactivation during 60 minutes in the temperature of 56°C, 4 ml. of quantity (about 90000 toxoplasm in one ml.). From the 11 tested rabbits two died after an infection by an inactivated exudate - after reinfection which didn't produce antibodies. Three more died after 3 - 6 infections. As to the remaining 6 rabbits (inactivated exudate in 60 min.) five of them produced antibodies which grew from the begin of the reinfection (titer after three reinfections 1:32 - 1:128, after 10 reinfections 1:180 +++).

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S.Tos-Luty, A.Bartoszewski, R.Sikorski

COMPARISON OF ANTIGENS PRODUCED IN PRAGUE AND 190  
LUBLIN FOR INTERDERMAL TESTS WITH TOXOPLASMOSIS.

Wiad.Parazyt., 1959, T.V, p.6.

In order to compare the value of alergens produced by the Institute of Parasitology at the Charles University in Prague (Acad.O.Jirovec) and the serie L58 antigen produced in Lublin (IMP), we performed an interdermal test on 114 women being in treatment in the I Clinic for Obstetric and Women Diseases AM, in Lublin.

The Czech antigen and the our one have been used; at the same time we applied Czech control-antigens (0,25 phenol solution in physiological fluid) and own, prepared out of the spleen of healthy mice, together with the physiological fluid. We used antigens in a quantity of 0,1 ml. The skin reactions were read after 24 and 48 hours. We got according results, i.e. 83,3 %. At 66,6 % the reaction intensity was the same, instead of the reactions 16,6 % given by the Czech alergen which we denoted +++; the Lublin alergen, showed only +. As for the 16,6 % reactions onto the Czech alergic, they were decidedly positive.

In 48 cases the Lublin antigen has been used in a 1:250 solution and the Czech antigen in a 1:500 solution. Changes had not been found (1:1000). We got according results, i.e. 85 % by these solutions. The Lublin antigen gave 12,5 % positive results, the Prague antigen showed negative results; in one of the cases, the Czech antigen showed a positive result and the Lublin antigen a negative one. We noted very strong reactions after the use of our antigen in a solution of 1:250. The intensity of reactions caused by our solution, showed 1:500, and for the Czech one 1:1000. The intensity has been the same.

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As for the rest of the cases (48) our antigen has been used in a solution 1:500 and the Czech one in a solution 1:1000. The conformity of results carried out 95,4 %.

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M. Stroczyńska, J. Umiński, S. Toś-Luty

THE EVALUATION FOR THE WARM AND COLD COMPLEMENT 191.  
FIXATION FOR THE REACTION IN TOXOPLASMOSIS.

Wiadomości Paraz., 1959, V.6, p.531.

Researches in regard to toxoplasmosis have been performed by reaction on to the complement fixation test. The aim for this work was the statement for the purpose which of these methods will be the better one for laboratory diagnostic in toxoplasmosis. 287 serums have been tested among them 282 human, and 5 rabbit's serums. There is a summary divided into the following points:

1. 5,92 % warm method  
14,79 % cold method
2. The titer in cold method was always a higher one than in the warm one.
3. The accordance of results from the fixation reaction with the results of the dye-test, S.F., and Frenkl's intradermal test for the warm method carried out - 61,5 %, and for the cold method, 66,6 %. The accordance of reaction results in the complement fixation test carried out - 54,8 % for cold method, and 58,06 % for the warm one. The accordance of results for the complement fixation test, and the dye test for the two methods, carried out 84 %.

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R.Sikorski, M.Stroczyńska, S.Tos-Luty

TOXOPLASMA IN PREGNANT WOMEN AND THE ESTIMATION 192.  
TEST FOR DIAGNOSTICAL METHODS.

Wiad.Parazyt., 1959, V, 6, p.541.

The aim of this work was to find a definition for the role of toxoplasma in the pathology of pregnant women, in the district of Lublin. Further on, we wanted to estimate the dependance upon three methods: the endoderma reaction of Frenkl, the color test S.F., and the reaction to complement fixation.

We tested 369 women in serological and alergical way. In 64 cases the tests were carried out only by fixation of the complement and that of endoderma. The greatest amount of results was carried out by endoderma fixation i.e. 33,8 %, the smallest ones by fixation of the complement, i.e. 8 %, dye tests gave 10 %.

The conformity of these three tests gave an amount 56,7 % (225 cases). As for the rest of cases (171) the conformity of results between individual tests was brought out in the following manner: for complement fixation and colour test we got 15,6 %, for complement fixation and the endoderma reaction of Frenkl we got 6,72%. As for the remaining 9,5 % there occured a nonconformity between the results of complement fixation and those of the endoderma reaction of Frenkl.

The highest percentage of infections has been seen in a group of early births (56,6 %); this group contained also a great number of still-born children (foetus) with development defects.

Among the group of women with abortus the percentage of positive results is the lowest one (21,1 %). The percentage of positive results was almost identical in the

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group of women who were not suspected for toxoplasma infection, and in a group which was suspected (32,1% / 37,7%).

A very exact anamnesis history about 241 women (multipara) relatively to overcomed pregnancy showed that the quantity of not living foetus is of 2,9 % higher and the quantity of prematured babied is 30 % higher.

The quantity amount of babies with development defects is three times higher in the group of women who passed through toxoplasmical infections. On the other hand we noted a quantity of still-born children with positive results of 3,8 %, whilst the group of women with negative results showed 5,6 %.

In cases of mixed abortion of prematured babies or foetus with development defects we had to take under consideration the possibility of toxoplasma infection of the mother. Such cases should be laboratorily tested. Positive results of even one serological reaction in comparison with clinical observation for judges the necessity of a profilactic treatment against toxoplasma.

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J.Umiński, M.Stroczyńska

THE INVESTIGATIONS OF MICROMAMMALIA IN COURSE OF 193.  
TRICHINELLOSIS, IN THE DISTRICT OF TOMASZEW  
LUBELSKI.

Wiad.Parazyt., 1960, v.4, p.309.

From 1958-1959 we tested micromammalia in the above mentioned district (Niemirówek). We got this material from hunting-grounds in special prepared cylinders. 972 of small rodents and insectivorous were catched in different seasons. An investigation of the diaphragm muscle had

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been performed, by the means of microscopical method.  
(compressors).

We investigated the following kinds of animals:

*Sorex minutus* - 2; *Sorex araneus* - 12; *Neomys fodiens* - 4; *Talpa europea* - 6; *Microtus arvalis* - 519; *Microtus rattleiceps* - 16; *Microtus minutus* - 17; *Clethrionomys glareolus* - 1; *Apodemus agrarius* - 15; *Apodemus sylvaticus* - 1; *Arvicola terrestris* - 14; *Mus musculus* - 343; *Rattus norvegicus* - 4; *Mustela nivalis* - 5; *Nyctalus leisleri* - 13.

All of the cases gave negative results.

A. Bartoszewski, R. Sikorski, M. Stroczyńska,  
S. Tos-Luty, J. Umiński

A STATISTICAL PRESENTATION OF RESULTS OF THE 194.  
COMPLEMENT FIXATION TEST, IN TOXOPLASMOSIS.

Acta Parasitologica Polonica, 1960, VIII, p.80.

This work will describe the method of a statistical dependence between positive results, the environment, age and sex in order to precise the influence of toxoplasmosis on pregnancy run. We performed these investigations by the help of the complement fixation.

1307 serum of pregnant women and women in childbirth, blood-givers, and persons being always in contact with animal reservoirs, and working in meat-establishments have been tested; they all are living in the Lublin-district.

We give the following results:

1.	Positive results for the whole of tested people	- 6,5 %
2.	Doubtful	" " " " " " = 3,1 %
3.	Negative	" " " " " " = 90,4 %

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The highest percentage of positive results showed blood-givers - 9,9 %, and the group of women after load child-birth, as well as women after abortus (9,3 %).

As for persons working in meat-establishments, the percentage of positive results showed 5,5%; in women with regular child-birth in the past - only 2,6 %.

I. A greater percentage of toxoplasmosis infections could be observed in country environments; (country 8,2 %, town - 5,4 %). The statistical analysis confirms it in the following figure  $\chi = 4,2$ ;  $P = 0,04$ .

II. A quantitative increase of results did not grow with mens' age:  $\chi = 1,952$ ,  $P = 0,74$ .

III. We found minimal differences for the quantity of gained positions with positive results; they depend upon the sex (women - 8,5 %, men - 6,1 %).

By the help of this statistical analysis we can state, that this difference is not essential:  $\chi = 1,5$  %,  $P = 0,22$  %.

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J.Wawrzkiewicz, J.Umiński

TESTS MADE ON BREED FOXES FOR TOXOPLASMOSIS.

195.

Wiad.Parazyt. (in printing)

Taking under consideration the fact that testing foxes on toxoplasmosis has never been performed in Poland before, the authors of this work got the idea to test them in one of the farms of the Lublin district (Żurawiniec).

We tested 138 animals (*vulpes vulpes* L - the silver and platine variety, and an other kind, *Alopex* ), by serological manner; they didn't show any symptoms of clinical diseases. The complement fixation test was

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executed by Kolmer method. We used a watery extract of toxoplasmosis for antigen (Jacobs 1957). Among 138 tested animals 25 showed (18,1 %) positive results with the titer 1:3, two (1,4 %) - with the titer 1:4, nine (6,5 %) with the titer 1:8, and two (1,4 %) with the titer 1:16. Six serums (4,3 %) showed an anticomplement reaction.

Taking under consideration the above given results we ought suppose that toxoplasmosis is rather widely spread in breed foxes living on our area. They may possibly become a danger for infections with the antropozoonose for the service.

M. Stroczyńska, J. Umiński

SOIL-TESTING ONTO THE PRESENCE OF GEOHELMINTHES. 196.  
Wiad. Parazyt. (in printing)

Soil tests have been performed in the years 1959-1960. The investigations took place during the following months: April, May, June, July, September, October. The tests were performed by the help of the Wasilkowa method, by adjusting own modifications. We took for this purpose 100 g. of soil from the surfaces and some from a deepness of 5 cm. Parallel with parasythological tests, we performed some supplementary ones. We marked the mechanical constitution of the soil, by help of the Cassagrande method with Prószyński's modifications. 1) The content of  $\text{CaCO}_3$  (Scheibler method). 2) Carriers content (Iszczerekowa-Rottowa method with Dublany-modifications). Then followed the easy assimilating phosphor and potassium (Wendrauschowa method). We performed also meteorological observations. We further tested 372 persons on the parasithological way and 62 samples by the mentioned soil expertise.

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We found parasites in 50 % out of the tipped points. The frequentest ones are *Ascaris lumbricoides* eggs (from 9,6 % - 32,2 %) and *Trichuris trichiura* eggs, from 6,4 % - 19,3 %. The two kinds showed together from 6,4 % - 16,1 %. In dependence of the season we started different percents for infections, observed in cases of high developed carriers, in a  $\text{CaCO}_3$  soil. We couldn't observe any strict relation, between the content  $\text{P}_2\text{O}_5$  - and  $\text{K}_2\text{O}$ , and the soil infection by parasites.

J.Umiński, J.Pietrzyk

RESULTS FROM RESEARCHES PERFORMED ON MONKEYS  
ONTO TOXOPLASMOSIS BY THE COMPLEMENT FIXATION  
TEST.

197.

(In printing 1960).

We tested 171 monkeys, *Macacus rhesus* and *Macacus cynomolgus* coming from India and the Malaya Peninsula. Healthy animals 2-3 years of age being destinated for "Polio vaccine" have been used for the fabrication of this preparate. We used the Complement Fixation Test by Kolmer, with modifications by Stroczyński and coll. (1959).

We got 26 (12,2 %) positive results, by using the Complement Fixation test Kolmer with modifications Stroczyński et coll. for *Macacus rhesus*; Thirteen (13) of these animals reacted positively, with the titer 1:2, and nine with the titer 1:4.

As to the *Macacus cynomolgus* we got four (4) positive results with the titer 1:2. We could further observe the relative high percentage of non specifical results (19,8%) in monkeys which were given Cortisone. Anatomic-pathological tests have been performed for all the monkeys, having

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been subdued to serological investigations. We couldn't confirm in any case characteristical changes of toxoplasmosis. As for the serological cases we tried to isolate parasites, living in the inner organs (brain, spleen, liver, lungs, lymphatic glands) of tested monkeys by the mean of blind passages on white mice. We didn't obtain any positive results.

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R. Sikorski, M. Stroczyńska

ABORTUS AND TOXOPLASMOSIS.

198.

Wiadomości Parazytologiczne (in printing).

Research on to the character of pregnancy pathology, has been initiated in the year 1959. We tested 70 women. 35 of them had aborted and remained in the Clinic I (Women Diseases and Obstetrix). Immediately after the abortus, tests have been performed. We divided the cases into 2 groups:

1. Women, after the first abortus - any suspicion.
2. Women with early interrupted pregnancy or with a foetus with development defects like: lack of cerebrum, spine-fissure, hydrocephalus.

35 women of the control-group have been tested; they were all healthy. At the same time we performed tests onto toxoplasmosis (OWD), and the interdermal Test of Frenkl, as well as on listeriosis, brucellosis, lues and the incompatibility of Rh factor, in the limit of ABO system. We remarked of 17,1 % - for Rh conflict. The group with abortus, tested for toxoplasmosis showed 51, 4 % of positive results. One listeriosis case showed a positive reaction with a titer 1:160 +, and 1:130 ±. A repetition

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of reaction gave a negative result. In one of the cases, the incompatibility of the Rh factor, ran parallel with the positive reactions on toxoplasmosis. One of the cases confirmed, that the serological incompatibility went together with a not specific complement fixation test. The tests onto toxoplasmosis in the control-group were in 11,5 % of the cases positive. All the remaining results were negative. We couldn't observe a serological incompatibility. It may be that the earned results, confirm the importance of the toxoplasma gondii, in abortus.

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J.Umiński, H.Chrząstek-Spruch, M.Stroczyńska

FOCAL PARASITE-INVESTIGATIONS ON COUNTRY  
CHILDREN FROM THE LUBLIN-DISTRICT.

199.

Wiad.Parazytologiczne (in printing)

In 1960 we performed parasitical investigations in masses, in country children from three chosen villages: Turka (district Lublin), and in Żabno and Zagroble (arroundissement Krasnystaw). We tested altogether 414 children; from birthtime - 14 years of age. We found intestinal parasites in 316 children (76,3 %); in Żabno and Zagroble in 211 children (73,8 %); in Turka 105 children (84 %).

The investigations performed in these two districts showed, that the invasions of *Trichuris trichuria* predominated the *Enterobius Vernicularis*, and *Ascaris lumbricoides* invasions. The observed material confirmed not only the high degree of the extention of invasions; they often appeared in a form of 2-3 kinds.

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We found children with only one parasite (42,7 %), children with 2 parasites (42,3 %); and others with 3 parasites (12,6 %).

Blood investigations performed in the villages Źabno and Zagroble didn't show clear differences for the percental content of hemoglobine in children with and without intestinal parasites. There was no relation between the number of acidophilic cellules and the parasite invasions.

We found differences in the blood picture of children from the village Turka.

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A.Bartoszewski, R.Sikorski

PROPHYLACTIC THERAPY OF CONGENITAL TOXOPLASMOSIS. 200.

Polski Tygodnik Lekarski (in printing).

In 1958-1959 20 women have been treated on prophylactical way for congenital toxoplasmosis. The interview with these women (abortus, still-birth or child birth with development defects of the foetus) suggested toxoplasmosis; repeated serological reactions were positive. In all the cases a former nonconformity of Rh factor and ABO structure, or lues, listeriosis and brucellosis were excluded. We used for the treatment Daraprin preparation (675 mg. for one treatment) Dosulfine (18 g. for one treatment) a lot of vitamins and ferric preparations. After the treatment 8 women went in pregnancy, 5 of them gave life to living children whose development is a normal one; one of them gave to early birth to a dead child, two women are in the 7th month of pregnancy. The pregnancy development is normal. We couldn't state any dependence among the reactions and the run of the cure. It seems to

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us that the only criterion which can decide on the effect of prophylactic treatment of congenital toxoplasmosis is the normal childbirth and a child with normal physical and psychical development.

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J.Umiński, S.Toś-Luty, M.Stroczyńska, D.Bazylska

INVESTIGATIONS ABOUT TOXOPLASMOSIS, PERFORMED BY 201.  
COMPLEMENT FIXATION TEST IN ANIMAL RESERVOIRS.

Wiad.Parazyt. (in printing)

This work wants to define the frequency of appearance of positive serological results, complement fixation test as to toxoplasmosis for different wild and domestic animals. The reaction of the complement fixation test was made by Kolmer's method. We tested altogether 1738 animals: 673 small mammals, 450 breded animals, 375 birds and 144 domestic animals. The investigations showed 88 (6 %) positive reactions, if we take the titer 1:3 for positive results and higher on.

The greatest percentage of positive results showed dogs (25,35 %), chiefly from the Lublin district. The given titers oscillated between 1:3 - 1:20. These results lay stress on the great meaning of dogs in toxoplasmosis epidemiology. A proportionally great number of positive results was carried out from ducks, i.e. (6,8) and pigeons (4,5 %) serums thus showing a certain significance of those animals in extending toxoplasmosis.

A small group of mammals containing 15 kinds of them showed a rather low percentage for positive results (2,67%). As for *Mus musculus* (2,7 %), and *Microtus arvalis* (2,97 %), we could find in them antibodies.

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S. Toś-Luty, J. Umiński, M. Stroczyńska

INVESTIGATIONS ON TOXOPLASMOSIS AMONG PEOPLE  
 WORKING IN SLAUGHTER-HOUSES, TANNERIES AND  
 VILLAGE PEOPLE.

202.

Wiadomości Parazytologiczne (in printing)

We performed investigations in slaughter-houses (for fowl), tanneries and among country people and foresters in the district of Lublin. Beside them, people working in fowl slaughter houses of Rzeszów, Olsztyn and Cracow districts have been tested, too. There was a separate group of deaf and dumb children, from Ostromiecko, district Bydgoszcz.

We tested in general 1226 people, by the complement fixation test (method Kolmer). At the same time 205 people were tested by the complement fixation test and the interdermal test of Frenkl.

We got 146 (19,5 %) positive results for the complement fixation test and 83 (44,8 %) for the interdermal Frenkl's test. Among the 598 people working in fowl slaughter-houses we could affirm 70 (11,7 %) positive results of complement fixation test; the highest percentage (15,4 %) showed workers of the Olsztyn district, the lowest one (9,5 %) the workers of the Rzeszów district.

Among 147 workers of the Lublin tannery, 15 persons, i.e., 2 % reacted positively on the complement fixation test, and 51 (34,62 %) on Frenkl's interdermal test. As to country people (411 persons), as well as forest-workers (12 persons), they reacted positively on the complement fixation test according in 39 (9,5 %) of cases, in 4 (33,3 %) of the cases.

The highest percentage of positive results for the complement fixation test as well as for Frenkl's interdermal test has been carried out from deaf and dumb children. We confirmed antibodies for toxoplasmosis in 18 (31 %) and a positive interdermal reaction in 32 (55,1 %) of the tested children.

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M. Stroczyńska, R. Sikorski, J. Umiński

TRICHOMONADOSIS IN THE COUNTRY.

203.

Wiadomości Bakteriologiczne (in printing).

We performed these investigations in order to gain an overlook of infections often seen in the country. These focal tests had been performed in one of the Lublin district areas, i.e., in the arroundissement of Krasnystaw. Laboratory and gynecologic investigations have been performed at the same time.

The laboratory tests reviewed secrets of the vagina out of direct and indirect secreta preparations, as well as from stained ones (method Giemza and Gramm). We determinated also the degree of cleanliness of the vagina after Winkl's method.

We stated Trichomonosis vaginalis in 19 % of all the tested women. In 31,5 % among them all we could constate inflammations of the genital organs; 38,1 % showed Trichomonadosis. After analyzing 27 cases of only genital inflammations, and 14 cases of inflammation together with uterus appendix inflammation and erosion, we found 48,3 % Trichomonosis. A proportionally often seen (50 %) Trichomonadosis infection was found among infertile women who didn't suffer from inflammations in the genital organs.

Further investigations are in progress.

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